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Northeastern
Station

Resource
Bulletin NE-91

1986



Biomass Statistics for Vermont - 1983

Thomas S. Frieswyk

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UNITED STATES FOREST SERVICE
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Abstract

A new measure of the forest resource has been added to the fourth forest inventory of Vermont. The inventory, which was conducted in 1982-83, included estimates of aboveground tree biomass on timberland. There are approximately 413 million green tons of wood and bark in the aboveground portion of all trees, which equates to an average of 93 green tons per acre statewide. Approximately 51 percent or 212 million green tons is in growing stock and nearly 49 percent or 202 million green tons is nongrowing stock (growing-stock tops, saplings, cull trees, stumps and salvable dead trees).

Foreword

The fourth inventory of Vermont was under the overall direction of Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis Unit. John Peters assisted in the development and administration of the operating plan and had supervisory responsibility for the inventory process. Charles T. Scott was responsible for the design of the inventory and sample selection. David J. Alerich supervised the aerial-photo interpretation and data collection by the field crews. He was assisted by Thomas B. Hartman, Joseph G. Reddan, and Karen Sykes. Members of the field crews were:

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David R. Dickson and Thomas S. Frieswyk used FINSYS (Forest INventory SYstem), a generalized data processing system, to address the specific informational needs of the Vermont inventory and produced summary tables for the State, geographic sampling units, and counties. Thomas W. Birch and Thomas S. Frieswyk were instrumental in assuring that the area estimates were consistent with three previous inventories. Anne M. Malley assisted in various data processing capacities and prepared and balanced the tables in this report. Margaret Little, Carol McAfee, J. Roger Trettel, and Karen Sykes performed a variety of data editing and compilation tasks.

Robert L. Nevel, Richard H. Widmann, and Eric H. Wharton, with the assistance of William G. Gove, Vermont Department of Forests, Parks and Recreation, collected and compiled the data on timber products output and timber removals.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

Manuscript received for publication

23 December 1985

Cover Photo: Courtesy of William Hall, Vermont Department of Forest, Parks, and Recreation.

BIOMASS STATISTICS FOR VERMONT – 1983

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Highlights

- * There are more than 413 million green tons of aboveground biomass in all trees. Over 98 percent or 407 million green tons is in live trees.
- * Two hundred and ten million tons or 51 percent of the net green weight of all trees is in growing stock.
- * More than two hundred and three million tons or 49 percent of the net green weight of all trees is in nongrowing stock. Thirty-eight percent of the nongrowing stock is in growing-stock tops, 34 percent is in rough and rotten cull trees, and 21 percent is in saplings and 6 percent is in stumps and salvable dead trees.
- * Seventy-one percent or 295 million green tons of the net aboveground biomass of all trees is in hardwoods.
- * Net aboveground biomass for all trees averages 93 green tons per acre in Vermont, and ranges from a low of 80 green tons per acre in Franklin/Grand Isle Counties to a high of 105 green tons per acre in Orange County.

- * Sawtimber stands contain 297 million green tons or 73 percent of aboveground biomass of all live trees.
- * The northern hardwoods forest-type group contains the largest amount of aboveground tree biomass (253 million green tons), but the aspen/birch group is more concentrated (104 green tons per acre of timberland).
- * Sugar maple is the leading species in terms of aboveground biomass as well as in cubic-foot volume. It accounts for 23 percent of the aboveground biomass of all live trees. Hemlock is the leading softwood species and accounts for 7 percent of the aboveground biomass.
- * Cull and salvable dead trees average 18 green tons per acre of timberland, and range from a low of 9 green tons per acre in Addison County to a high of 33 green tons per acre in Windsor County.

Introduction

The USDA Forest Service completed the fourth inventory of Vermont's forest resources in 1983. Previous inventories were conducted in 1948, 1966, and 1973.

The inventories are conducted under the authority of the McSweeney-McNary Forest Research Act of 1928 and subsequent acts including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978.

The biomass, area, and volume statistics presented in this report are a summary of data collected on new field plots established during the fourth inventory. The new plot sample consisted of 823 ground plots randomly selected from 16,313 photo points classified by land use and cubic-foot volume class.

Data were collected, processed, and analyzed by the Forest Inventory and Analysis staff. A complete list of available biomass tables is included in the appendix of this report. These tables are available on microfiche by state, geographic unit (Fig. 1), and county levels. Other tables or additional information may be developed. For further information, contact the Forest Inventory, Analysis, and Economics Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037).

Background

Traditionally, forest resource data have been collected to describe the forest in terms of its timber production capabilities. Board- and cubic-foot measures of volume (Fig. 2) were and are adequate for that purpose. Today, timber production is still considered by many to be the primary use of forest land, however, many data users are also interested in how the resource can be used for energy production, fiber-based products, wildlife or recreation. Because board-foot and cubic-foot volume estimates do not describe the forest

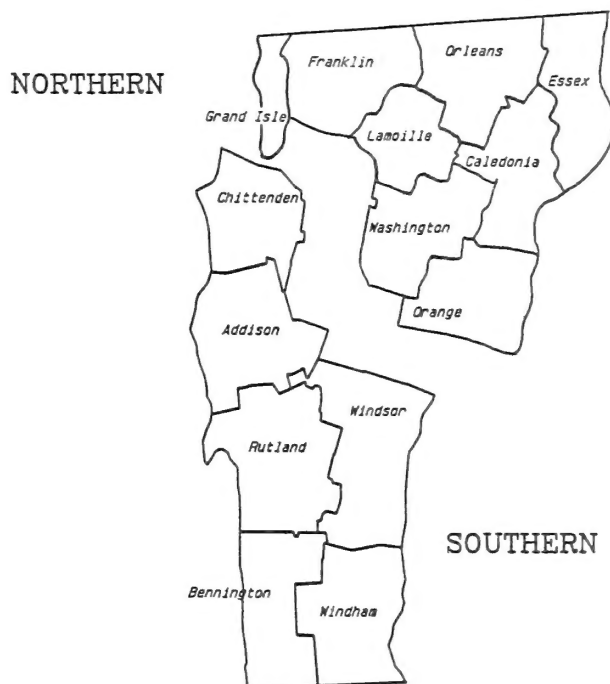


Figure 1.--Geographic Units.

resource broadly enough, biomass estimates have been built into the standard Forest Service inventory procedure (Fig. 2).

Weight equations developed for the major tree species in Maine (Young et al. 1980) were included along with the conventional volume equations used during the compilation of statewide statistics. The weight equations provide an estimate of the above-stump biomass of all trees. Separate techniques had to be used to derive estimates for specific components of trees such as stump biomass (ground level to a 1-foot stump height), merchantable stem biomass (1-foot stump height to a 4-inch top diameter outside bark (d.o.b.) and tops and branches.

Determination of stump biomass involved a two step process. First, the volume in stumps was estimated using regression equations in which diameter at breast height (d.b.h.) was the independent

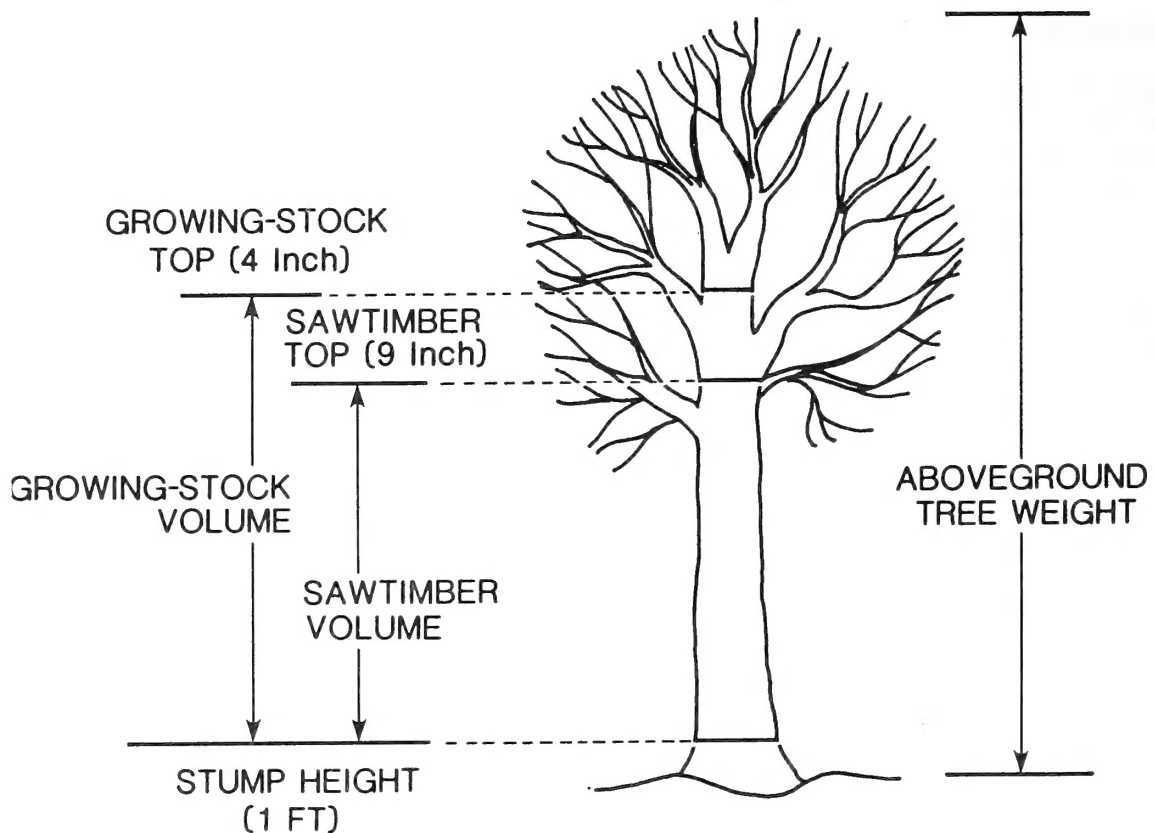


Figure 2.--Volume and weight relationships of hardwood aboveground tree biomass components.

variable (Raile 1982). Then the volumes were converted to weight using species-specific weight/volume ratios (Markwardt 1930).

The weight of the merchantable stem was calculated by applying weight/volume ratios to estimates of volume. Timber volume was estimated from new equations for both sawtimber and growing stock (Scott 1979, 1981). The difference between above-stump biomass from the weight regression equations and the independent estimate of merchantable stem biomass was the estimate for tops and branches.

Estimates of area, volume, numbers of trees, and aboveground tree biomass have been summarized in this report. The statistics are presented by forest-type group, species or species group, and diameter group; tables are provided by state and county level.

Reliability of Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout Vermont. However, because the field crews did not measure every tree nor examine every acre in the State, the data are estimates. Therefore, zeros in any table cell indicate that the condition did not appear in the sample, or that the amount encountered was negligible. They do not necessarily mean that the condition does not exist.

There are two important sources of error to consider when looking at the estimates provided in this report: (1) the error associated with estimation from sample plots, and (2) the error associated with combining independent estimates. Some of the errors associated with estimation from sample plots are included in the tables and are called sampling error. We are not able

to calculate a value for the error associated with combining independent estimates.

Briefly, here is an example of how the sampling error is used to indicate reliability. The estimate of aboveground biomass of all trees on timberland in Vermont is 413 million green tons. It has an associated sampling error of 1.5 percent, or 6.6 million green tons. This means that if the survey were repeated, the odds are 2 to 1 (66 percent probability) that the estimate would be between 406.4 and 419.6 million green tons (413 ± 6.6). Similarly, the odds are 19 to 1 (95 percent probability) that the estimate would be within ± 13.2 million green tons.

State estimates have the smallest sampling errors and therefore are the most reliable. Geographic unit estimates are the next most reliable followed by county estimates. For example, the sampling error of aboveground tree biomass for Vermont is 1.5 percent, while the sampling error for Chittenden County is 7.3 percent. County estimates are expected to be considerably less reliable than state estimates. The state estimates are based on a larger sample than county estimates, and as the sample size used to obtain the estimate decreases in relation to the population size, the sampling error is expected to increase.

Some of the estimates have sampling errors that are greater than 25 percent and may not be usable. A single and double asterisk have been used to denote errors that exceed 25 and 50 percent, respectively. Any estimate with a sampling error of 50 percent or more would not be significantly different from zero, and those estimates with errors between 25 and 50 percent are suspect. Therefore, any estimates that have errors exceeding 25 percent should be used with caution.

The second important source of error occurs when two independent estimates are used to derive a third estimate.

The biomass in tops and branches has been derived in this manner. The estimate of the merchantable stem biomass was subtracted from the estimate of total above-stump biomass to yield an estimate of the biomass in tops and branches. Consequently, the estimates of tops and branches should be used with caution.

Index to Tables

The tables are divided into three sections: (1) net volume and aboveground biomass of all trees, (2) net aboveground biomass of all live trees and (3) net aboveground biomass of cull and salvable dead trees.

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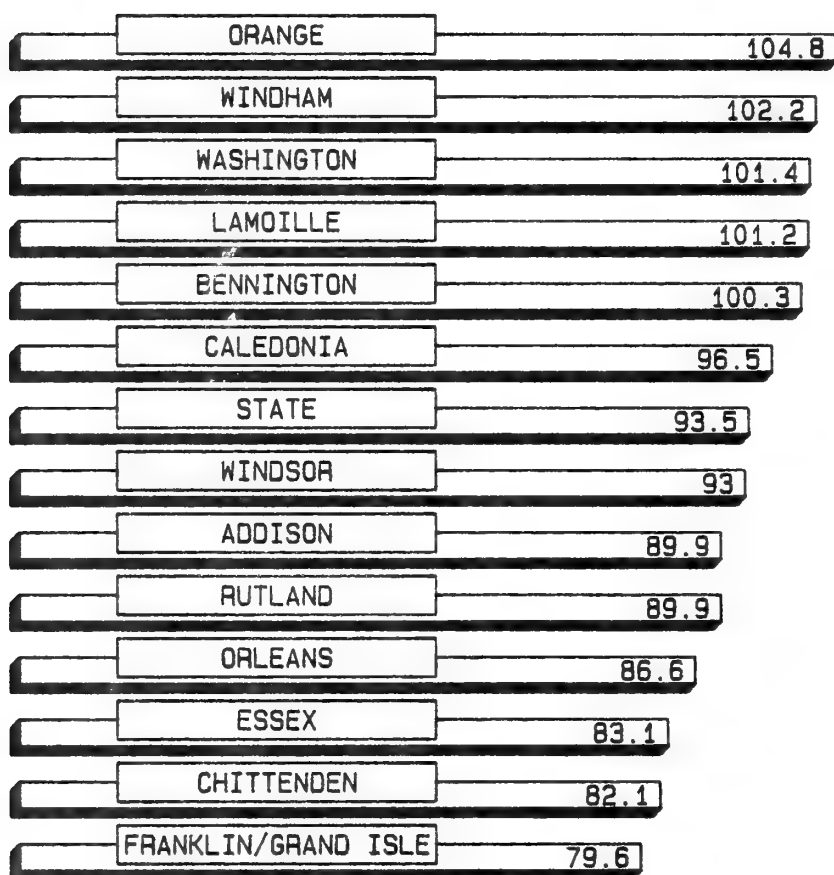
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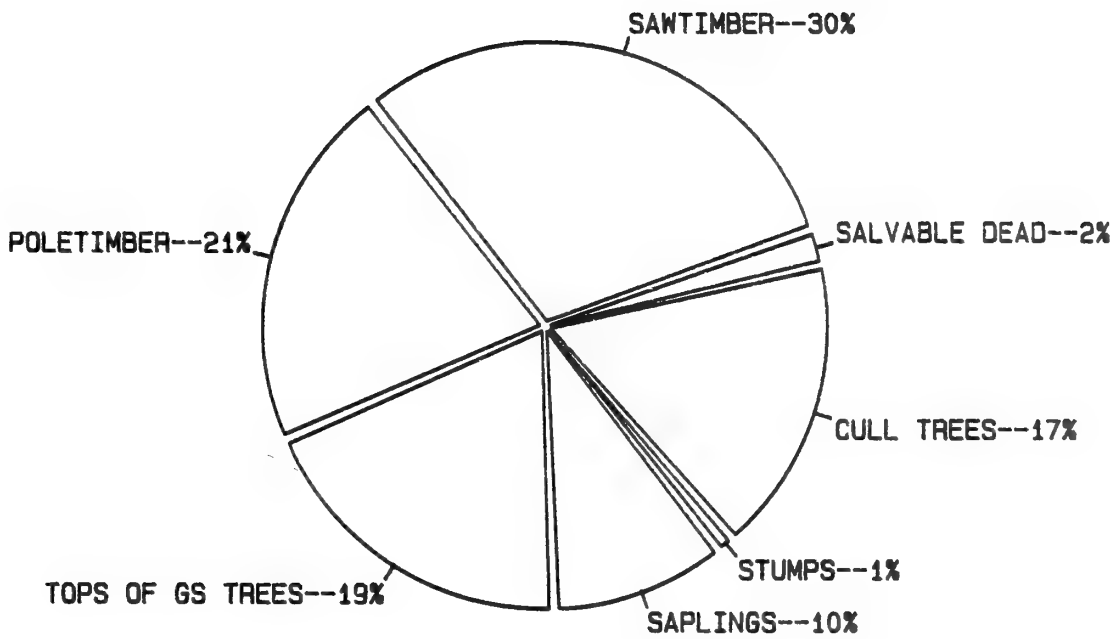
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NET ABOVEGROUND TREE BIOMASS
PER ACRE of TIMBERLAND
green tons per acre



ABOVEGROUND BIOMASS of ALL TREES



CLASS OF MATERIAL

Table 1.--Net volume of sawtimber, growing stock, and aboveground tree biomass of all trees on timberland, by county and species group, Vermont, 1983

County	Species group		All species
	Softwoods	Hardwoods	
SAWTIMBER ^a			
	<u>Million board feet</u>		
Addison	187.7	629.3	817.0
Bennington	128.1	1,272.5	1,400.6
Caledonia	510.6	534.5	1,045.1
Chittenden	105.3	471.7	577.0
Essex	416.7	636.7	1,053.4
Franklin/Grand Isle	383.7	400.2	783.9
Lamoille	177.5	459.4	636.9
Orange	636.4	728.2	1,364.6
Orleans	437.6	262.9	700.5
Rutland	419.5	972.8	1,392.3
Washington	531.1	666.0	1,197.1
Windham	758.3	1,022.8	1,781.1
Windsor	389.8	848.2	1,238.0
All counties	5,082.3	8,905.2	13,987.5
GROWING STOCK ^b			
	<u>Million cubic feet</u>		
Addison	79.4	316.0	395.4
Bennington	43.6	485.3	528.9
Caledonia	220.0	257.3	477.3
Chittenden	39.4	221.9	261.3
Essex	183.1	310.1	493.2
Franklin/Grand Isle	142.4	192.3	334.7
Lamoille	76.3	232.2	308.5
Orange	237.7	334.4	572.1
Orleans	208.8	176.0	384.8
Rutland	156.4	441.9	598.3
Washington	208.8	376.9	585.7
Windham	261.7	494.0	755.7
Windsor	146.9	432.6	579.5
All counties	2,004.5	4,270.9	6,275.4

Table 1.--Continued

County	Species group		All species
	Softwoods	Hardwoods	
ABOVEGROUND TREE BIOMASS ^C			
	----- <u>Thousand green tons</u> -----		
Addison	4,613.0	21,060.3	25,673.3
Bennington	2,847.8	32,736.1	35,583.9
Caledonia	12,334.7	15,861.0	28,195.7
Chittenden	2,307.1	15,335.8	17,642.9
Essex	9,920.3	22,806.8	32,727.1
Franklin/Grand Isle	8,166.7	13,959.2	22,125.9
Lamoille	4,778.0	19,064.1	23,842.1
Orange	13,604.1	22,234.2	35,838.3
Orleans	12,075.2	14,338.3	26,413.5
Rutland	9,311.7	30,685.6	39,997.3
Washington	11,325.9	24,547.7	35,873.6
Windham	14,244.5	28,789.9	43,034.4
Windsor	13,067.3	33,479.9	46,547.2
All counties	118,596.3	294,898.9	413,495.2

^aNet volume in board feet, by International 1/4-inch rule, of live trees of commercial species at least 9.0 inches d.b.h. (diameter breast height) for softwoods or 11.0 inches d.b.h. for hardwoods, between a 1-foot stump height and a minimum sawlog top of 7.0 inches d.o.b. (diameter outside bark) for softwoods or 9.0 inches d.o.b. for hardwoods, or until the point on the main stem above which a sawlog cannot be produced.

^bNet volume, in cubic feet, of live trees of commercial species at least 5.0 inches d.b.h. between a 1-foot stump height and a minimum top of 4.0 inches d.o.b., or to the point where the main stem breaks into limbs.

^cNet biomass, in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch d.b.h., above the ground level (excluding foliage).

Table 2.--Area of timberland, net aboveground tree biomass of all trees on timberland, and net aboveground tree biomass per acre of timberland, by county, Vermont, 1983

County	Timberland area	Total aboveground tree biomass ^a	Total aboveground tree biomass per unit area
	<u>Thousand acres</u>	<u>Thousand green tons</u>	<u>Green tons per acre</u>
Addison	285.6	25,673.3	89.9
Bennington	354.8	35,583.9	100.3
Caledonia	292.3	28,195.7	96.5
Chittenden	214.9	17,642.9	82.1
Essex	393.7	32,727.1	83.1
Franklin/Grand Isle	278.1	22,125.9	79.6
Lamoille	235.5	23,842.1	101.2
Orange	341.9	35,838.3	104.8
Orleans	305.1	26,413.5	86.6
Rutland	444.7	39,997.3	89.9
Washington	353.8	35,873.6	101.4
Windham	421.0	43,034.4	102.2
Windsor	500.7	46,547.2	93.0
All counties	4,422.1	413,495.2	93.5

^aNet biomass, in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch d.b.h. above the ground level (excluding foliage).

Table 3.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	38,783.3	65,388.5	104,171.8	3
Upper stem	5,156.8	15,953.6	21,110.4	3
Total	43,940.1	81,342.1	125,282.2	3
Poletimber trees	18,545.2	65,962.0	84,507.2	3
All growing stock	62,485.3	147,304.1	209,789.4	2
Rough cull trees ^b	10,169.5	22,384.7	32,554.2	5
Rotten cull trees ^b	1,330.4	19,126.5	20,456.9	5
Salvable dead trees ^c	2,749.3	3,512.4	6,261.7	9
Saplings ^d	13,242.9	29,189.0	42,431.9	6
Stumps ^e	1,553.0	4,671.3	6,224.3	2
Tops - growing stock	22,986.0	54,800.4	77,786.4	2
Tops - rough and rotten	4,079.9	13,910.5	17,990.4	3
All nongrowing stock	56,111.0	147,594.8	203,705.8	2
All classes	118,596.3	294,898.9	413,495.2	1.5
Sampling error (percent)	5	2	1.5	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 4.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Addison County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	1,445.3*	4,746.3	6,191.6	10
Upper stem	186.5*	1,183.9	1,370.4	10
Total	1,631.8*	5,930.2	7,562.0	10
Poletimber trees	996.4*	5,388.7	6,385.1	11
All growing stock	2,628.2*	11,318.9	13,947.1	8
Rough cull trees ^b	92.9*	943.3	1,036.2	19
Rotten cull trees ^b	33.2**	721.2	754.4	20
Salvable dead trees ^c	42.7**	228.7*	271.4	33
Saplings ^d	714.3**	2,726.1	3,440.4	20
Stumps ^e	58.4*	331.1	389.5	7
Tops - growing stock	991.2*	4,272.1	5,263.3	8
Tops - rough and rotten	52.1**	518.9	571.0	14
All nongrowing stock	1,984.8*	9,741.4	11,726.2	9
All classes	4,613.0	21,060.3	25,673.3	6.9
Sampling error (percent)	27	8	6.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 5.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Bennington County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	1,079.6*	9,287.6	10,367.2	8
Upper stem	124.9	2,192.7	2,317.6	8
Total	1,204.5*	11,480.3	12,684.8	8
Poletimber trees	315.6	5,671.1	5,986.7	10
All growing stock	1,520.1	17,151.4	18,671.5	6
Rough cull trees ^b	215.8*	2,131.2	2,347.0	16
Rotten cull trees ^b	46.9**	1,581.1	1,628.0	17
Salvable dead trees ^c	3.7**	178.4*	182.1	38
Saplings ^d	377.0*	3,840.3	4,217.3	16
Stumps ^e	36.3	521.9	558.2	5
Tops - growing stock	534.2	6,144.1	6,678.3	6
Tops - rough and rotten	113.8*	1,187.7	1,301.5	12
All nongrowing stock	1,327.7	15,584.7	16,912.4	5
All classes	2,847.8	32,736.1	35,583.9	4.2
Sampling error (percent)	20	5	4.2	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 6.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Caledonia County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	3,724.0	3,668.1	7,392.1	11
Upper stem	511.6	845.2	1,356.8	11
Total	4,235.6	4,513.3	8,748.9	11
Poletimber trees	2,365.2	4,047.1	6,412.3	11
All growing stock	6,600.8	8,560.4	15,161.2	8
Rough cull trees ^b	241.0*	943.1	1,184.1	18
Rotten cull trees ^b	62.9**	446.8*	509.7	26
Salvable dead trees ^c	511.7*	611.2*	1,122.9	23
Saplings ^d	2,145.1*	1,424.7*	3,569.8	20
Stumps ^e	148.0	232.7	380.7	7
Tops - growing stock	2,509.3	3,203.9	5,713.2	8
Tops - rough and rotten	115.9*	438.2	554.1	15
All nongrowing stock	5,733.9	7,300.6	13,034.5	8
All classes	12,334.7	15,861.0	28,195.7	6.5
Sampling error (percent)	15	13	6.5	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 7.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Chittenden County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- <u>Thousand green tons</u> -----			<u>Percent</u>
Sawtimber trees:				
Sawlog portion	831.1*	3,389.9	4,221.0	10
Upper stem	116.6*	773.7	890.3	10
Total	947.7*	4,163.6	5,111.3	10
Poletimber trees	331.0*	3,170.1	3,501.1	11
All growing stock	1,278.7*	7,333.7	8,612.4	8
Rough cull trees ^b	284.5*	1,099.4	1,383.9	14
Rotten cull trees ^b	15.2**	801.1	816.3	21
Salvable dead trees ^c	2.7**	101.1*	103.8	43
Saplings ^d	99.9**	2,433.3*	2,533.2	31
Stumps ^e	34.9*	233.5	268.4	7
Tops - growing stock	473.0*	2,694.1	3,167.1	8
Tops - rough and rotten	118.2*	639.6	757.8	10
All nongrowing stock	1,028.4*	8,002.1	9,030.5	10
All classes	2,307.1	15,335.8	17,642.9	7.3
Sampling error (percent)	33	9	7.3	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 8.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Essex County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	2,594.1	4,586.6	7,180.7	10
Upper stem	388.8	1,123.8	1,512.6	10
Total	2,982.9	5,710.4	8,693.3	10
Poletimber trees	2,080.3	4,989.3	7,069.6	7
All growing stock	5,063.2	10,699.7	15,762.9	6
Rough cull trees ^b	470.4*	1,884.4	2,354.8	16
Rotten cull trees ^b	190.2*	1,642.7	1,832.9	13
Salvable dead trees ^c	324.5*	173.9*	498.4	22
Saplings ^d	1,474.1*	2,864.3	4,338.4	16
Stumps ^e	133.8	354.3	488.1	5
Tops - growing stock	1,993.0	3,921.8	5,914.8	6
Tops - rough and rotten	271.1	1,265.7	1,536.8	10
All nongrowing stock	4,857.1	12,107.1	16,964.2	6
All classes	9,920.3	22,806.8	32,727.1	4.8
Sampling error (percent)	17	8	4.8	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 9.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Franklin/Grand Isle Counties, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,226.4	2,979.9	6,206.3	14
Upper stem	413.0	728.9	1,141.9	14
Total	3,639.4	3,708.8	7,348.2	14
Poletimber trees	979.7	2,897.0	3,876.7	11
All growing stock	4,619.1	6,605.8	11,224.9	9
Rough cull trees ^b	644.6*	1,222.3	1,866.9	21
Rotten cull trees ^b	32.6*	1,069.9	1,102.5	23
Salvable dead trees ^c	222.4*	325.0**	547.4	41
Saplings ^d	673.8*	1,262.8*	1,936.6	23
Stumps ^e	116.6	221.3	337.9	8
Tops - growing stock	1,631.7	2,499.1	4,130.8	8
Tops - rough and rotten	225.9*	753.0	978.9	16
All nongrowing stock	3,547.6	7,353.4	10,901.0	9
All classes	8,166.7	13,959.2	22,125.9	7.5
Sampling error (percent)	20	10	7.5	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 10.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Lamoille County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	1,353.5*	3,562.9	4,916.4	12
Upper stem	193.0*	885.6	1,078.6	11
Total	1,546.5*	4,448.5	5,995.0	12
Poletimber trees	829.6*	3,875.0	4,704.6	10
All growing stock	2,376.1*	8,323.5	10,699.6	7
Rough cull trees ^b	509.9*	1,907.9	2,417.8	11
Rotten cull trees ^b	47.7**	1,765.2	1,812.9	19
Salvable dead trees ^c	125.1*	184.3*	309.4	30
Saplings ^d	512.0**	2,214.3	2,726.3	24
Stumps ^e	73.4*	300.9	374.3	5
Tops - growing stock	907.5*	3,094.3	4,001.8	7
Tops - rough and rotten	226.3*	1,273.7	1,500.0	9
All nongrowing stock	2,401.9*	10,740.6	13,142.5	7
All classes	4,778.0	19,064.1	23,842.1	5.7
Sampling error (percent)	25	7	5.7	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 11.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Orange County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	4,998.5	5,346.1	10,344.6	10
Upper stem	652.2	1,329.5	1,981.7	9
Total	5,650.7	6,675.6	12,326.3	10
Poletimber trees	1,963.8	4,629.8	6,593.6	9
All growing stock	7,614.5	11,305.4	18,919.9	7
Rough cull trees ^b	908.4*	1,537.9	2,446.3	17
Rotten cull trees ^b	50.7**	1,894.8	1,945.5	22
Salvable dead trees ^c	140.0*	367.0*	507.0	25
Saplings ^d	1,636.0*	1,573.6*	3,209.6	19
Stumps ^e	168.3	329.9	498.2	6
Tops - growing stock	2,757.3	4,189.8	6,947.1	7
Tops - rough and rotten	328.9	1,035.8	1,364.7	12
All nongrowing stock	5,989.6	10,928.8	16,918.4	7
All classes	13,604.1	22,234.2	35,838.3	6.0
Sampling error (percent)	13	9	6.0	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 12.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Orleans County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	2,969.0	2,120.2	5,089.2	12
Upper stem	438.5	562.4	1,000.9	12
Total	3,407.5	2,682.6	6,090.1	12
Poletimber trees	2,255.2	3,571.4	5,826.6	9
All growing stock	5,662.7	6,254.0	11,916.7	8
Rough cull trees ^b	908.9	1,855.8	2,764.7	14
Rotten cull trees ^b	181.8*	1,221.3	1,403.1	20
Salvable dead trees ^c	567.9*	241.4*	809.3	29
Saplings ^d	1,946.2*	1,007.8*	2,954.0	24
Stumps ^e	169.4	232.7	402.1	7
Tops - growing stock	2,193.5	2,405.5	4,599.0	8
Tops - rough and rotten	444.8	1,119.8	1,564.6	12
All nongrowing stock	6,412.5	8,084.3	14,496.8	8
All classes	12,075.2	14,338.3	26,413.5	6.3
Sampling error (percent)	15	13	6.3	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 13.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Rutland County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	3,636.7	7,232.4	10,869.1	9
Upper stem	450.0	1,714.7	2,164.7	8
Total	4,086.7	8,947.1	13,033.8	8
Poletimber trees	1,359.4	6,677.2	8,036.6	9
All growing stock	5,446.1	15,624.3	21,070.4	6
Rough cull trees ^b	564.5*	2,783.0	3,347.5	14
Rotten cull trees ^b	137.0**	1,286.7	1,423.7	15
Salvable dead trees ^c	59.2*	202.5*	261.7	28
Saplings ^d	847.4*	3,173.9	4,021.3	16
Stumps ^e	120.7	494.3	615.0	5
Tops - growing stock	1,912.7	5,906.1	7,818.8	5
Tops - rough and rotten	224.1	1,214.8	1,438.9	10
All nongrowing stock	3,865.6	15,061.3	18,926.9	5
All classes	9,311.7	30,685.6	39,997.3	4.6
Sampling error (percent)	15	7	4.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 14.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Washington County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- <u>Thousand green tons</u> -----			<u>Percent</u>
Sawtimber trees:				
Sawlog portion	3,554.2	4,842.6	8,396.8	9
Upper stem	526.9	1,223.5	1,750.4	8
Total	4,081.1	6,066.1	10,147.2	9
Poletimber trees	2,032.4	6,940.7	8,973.1	8
All growing stock	6,113.5	13,006.8	19,120.3	6
Rough cull trees ^b	343.7*	1,425.0	1,768.7	14
Rotten cull trees ^b	66.9*	961.0	1,027.9	22
Salvable dead trees ^c	515.6*	688.6*	1,204.2	20
Saplings ^d	1,645.2*	2,333.5	3,978.7	16
Stumps ^e	135.0	348.9	483.9	4
Tops - growing stock	2,334.1	4,982.1	7,316.2	6
Tops - rough and rotten	171.9*	801.8	973.7	11
All nongrowing stock	5,212.4	11,540.9	16,753.3	5
All classes	11,325.9	24,547.7	35,873.6	4.8
Sampling error (percent)	18	7	4.8	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 15.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Windham County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	6,183.0	7,443.6	13,626.6	8
Upper stem	732.0	1,830.2	2,562.2	7
Total	6,915.0	9,273.8	16,188.8	7
Poletimber trees	1,997.1	7,317.1	9,314.2	8
All growing stock	8,912.1	16,590.9	25,503.0	6
Rough cull trees ^b	1,010.0*	1,397.1	2,407.1	20
Rotten cull trees ^b	141.0*	1,563.8	1,704.8	19
Salvable dead trees ^c	168.6*	112.6*	281.2	22
Saplings ^d	444.4*	1,621.8*	2,066.2	24
Stumps ^e	186.2	473.9	660.1	5
Tops - growing stock	3,074.7	6,093.9	9,168.6	6
Tops - rough and rotten	307.5*	935.9	1,243.4	13
All nongrowing stock	5,332.4	12,199.0	17,531.4	5
All classes	14,244.5	28,789.9	43,034.4	4.6
Sampling error (percent)	13	6	4.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

Table 16.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Windsor County, Vermont, 1983

Class of material	Species group		All species	Sampling error ^a
	Softwoods	Hardwoods		
	----- Thousand green tons -----			Percent
Sawtimber trees:				
Sawlog portion	3,187.9	6,182.3	9,370.2	9
Upper stem	422.8	1,559.5	1,982.3	8
Total	3,610.7	7,741.8	11,352.5	8
Poletimber trees	1,039.5	6,787.5	7,827.0	9
All growing stock	4,650.2	14,529.3	19,179.5	6
Rough cull trees ^b	3,974.9	3,254.3	7,229.2	12
Rotten cull trees ^b	324.3*	4,170.9	4,495.2	9
Salvable dead trees ^c	65.2**	97.7*	162.9	32
Saplings ^d	727.5*	2,712.6	3,440.1	20
Stumps ^e	172.0	595.9	767.9	4
Tops - growing stock	1,673.8	5,393.6	7,067.4	6
Tops - rough and rotten	1,479.4	2,725.6	4,205.0	8
All nongrowing stock	8,417.1	18,950.6	27,367.7	5
All classes	13,067.3	33,479.9	46,547.2	4.0
Sampling error (percent)	15	6	4.0	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

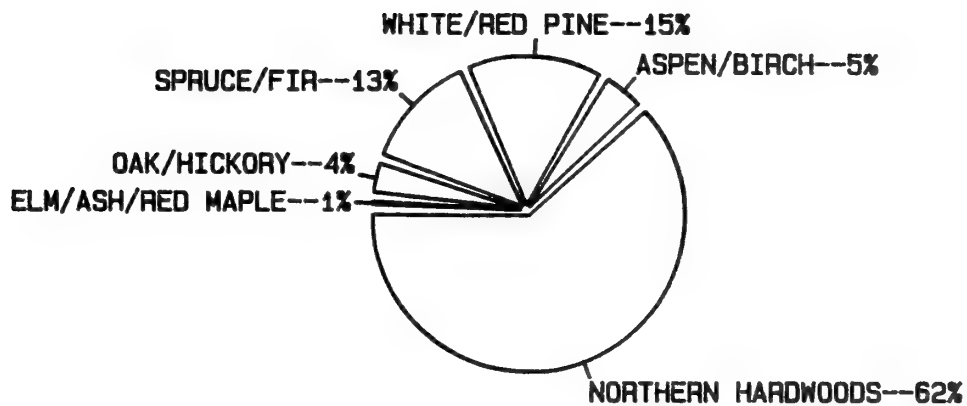
^bMain stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

^cIncludes entire tree above a 1-foot stump height.

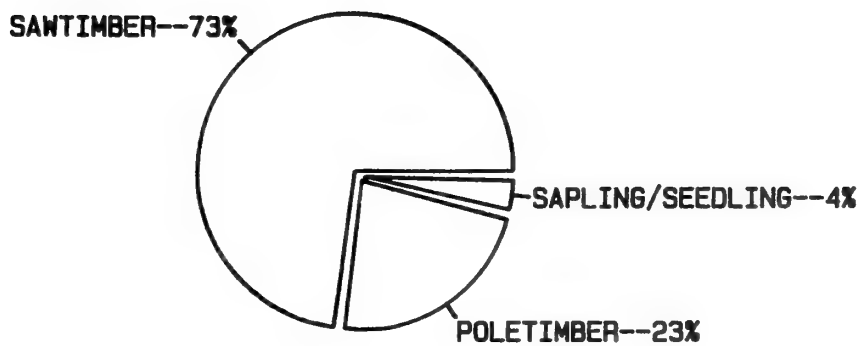
^dIncludes entire tree above the ground.

^eOf all trees 5.0 inches d.b.h. and larger.

ABOVEGROUND BIOMASS of ALL LIVE TREES



FOREST-TYPE GROUP



STANDSIZE CLASS

Table 17.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	54,733.7	5,659.3*	1,473.9*	.0	61,866.9	11
Spruce/fir	36,611.2	12,600.0	4,450.0*	.0	53,661.2	10
Oak/pine	595.1**	507.3**	.0	.0	1,102.4	71
Oak/hickory	9,176.6*	3,641.4*	1,207.8**	56.0**	14,081.8	24
Elm/ash/red maple	2,632.5*	1,268.5**	474.0**	.0	4,375.0	33
Northern hardwoods	187,855.1	57,983.5	7,234.1	.0	253,072.7	4
Aspen/birch	5,435.1*	13,030.6	471.8**	.0	18,937.5	21
Total, all groups	297,039.3	94,690.6	15,311.6	56.0	407,097.5	1.5
Sampling error (percent)	3	8	14	100	1.5	
	Thousand acres					Percent
White/red pine	522.0	65.3*	44.0*	.0	631.3	10
Spruce/fir	358.4	153.5	121.7	.0	633.6	9
Oak/pine	6.7**	6.8**	.0	.0	13.5	71
Oak/hickory	80.7*	45.4*	31.9*	6.4**	164.4	20
Elm/ash/red maple	43.6*	28.3*	27.1*	.0	99.0	26
Northern hardwoods	1,832.3	624.6	235.0	5.6**	2,697.5	3
Aspen/birch	44.1*	124.6	14.1**	.0	182.8	20
Total, all groups	2,887.8	1,048.5	473.8	12.0	4,422.1	.7
Sampling error (percent)	3	7	10	71	.7	
	Green tons per acre ^b					
White/red pine	104.9	86.7	33.5	.0	98.0	
Spruce/fir	102.2	82.1	36.6	.0	84.7	
Oak/pine	88.8	74.6	.0	.0	81.7	
Oak/hickory	113.7	80.2	37.9	8.8	85.7	
Elm/ash/red maple	60.4	44.8	17.5	.0	44.2	
Northern hardwoods	102.5	92.8	30.8	.0	93.8	
Aspen/birch	123.2	104.6	33.5	.0	103.6	
All groups	102.9	90.3	32.3	4.7	92.1	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 18.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Addison County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	2,429.7**	538.5**	.0	.0	2,968.2	50
Spruce/fir	.0	909.6**	.0	.0	909.6	100
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	1,585.0**	.0	81.4**	.0	1,666.4	69
Elm/ash/red maple	882.6**	.0	.0	.0	882.6	100
Northern hardwoods	12,421.9	4,102.5	447.2**	.0	16,971.6	14
Aspen/birch	1,304.7**	691.2**	.0	.0	1,995.9	74
Total, all groups	18,623.9	6,241.8	528.6	.0	25,394.3	7.0
Sampling error (percent)	14	30	67	-	7.0	
	----- Thousand acres -----					Percent
White/red pine	22.9**	7.8**	.0	.0	30.7	49
Spruce/fir	.0	7.7**	.0	.0	7.7	100
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	16.2**	.0	11.6**	.0	27.8	51
Elm/ash/red maple	8.5**	.0	.0	.0	8.5	100
Northern hardwoods	124.1	51.3*	13.7**	5.6**	194.7	12
Aspen/birch	7.7**	8.5**	.0	.0	16.2	71
Total, all groups	179.4	75.3	25.3	5.6	285.6	2.2
Sampling error (percent)	12	27	48	100	2.2	
	----- Green tons per acre ^b -----					
White/red pine	106.1	69.0	.0	.0	96.7	
Spruce/fir	.0	118.1	.0	.0	118.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	97.8	.0	7.0	.0	59.9	
Elm/ash/red maple	103.8	.0	.0	.0	103.8	
Northern hardwoods	100.1	80.0	32.6	.0	87.2	
Aspen/birch	169.4	81.3	.0	.0	123.2	
All groups	103.8	82.9	20.9	.0	88.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 19.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Bennington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	357.7**	.0	357.7	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	1,627.9**	.0	347.4**	.0	1,975.3	61
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	25,633.1	6,228.9*	1,201.3**	.0	33,063.3	6
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	27,261.0	6,228.9	1,906.4	.0	35,396.3	4.1
Sampling error (percent)	9	34	39	-	4.1	
	Thousand acres					Percent
White/red pine	.0	.0	6.5**	.0	6.5	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	14.2**	.0	6.4**	.0	20.6	58
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	251.2	56.6*	19.9**	.0	327.7	4
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	265.4	56.6	32.8	.0	354.8	1.8
Sampling error (percent)	8	33	38	-	1.8	
	Green tons per acre ^b					
White/red pine	.0	.0	55.0	.0	55.0	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	114.6	.0	54.3	.0	95.9	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	102.0	110.1	60.4	.0	100.9	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	102.7	110.1	58.1	.0	99.8	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 20.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Caledonia County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	4,544.0*	1,043.9**	.0	.0	5,587.9	37
Spruce/fir	4,300.2*	2,274.5**	442.7**	.0	7,017.4	28
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	7,945.1	5,023.6*	236.4**	.0	13,205.1	19
Aspen/birch	.0	899.3**	343.2**	.0	1,242.5	77
Total, all groups	16,789.3	9,241.3	1,022.3	.0	27,052.9	6.5
Sampling error (percent)	16	25	54	-	6.5	
	Thousand acres					Percent
White/red pine	44.2*	7.3**	.0	.0	51.5	35
Spruce/fir	44.1*	28.2*	14.6**	.0	86.9	24
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	66.8*	52.0*	20.2**	.0	139.0	17
Aspen/birch	.0	7.6**	7.3**	.0	14.9	71
Total, all groups	155.1	95.1	42.1	.0	292.3	3.8
Sampling error (percent)	15	24	39	-	3.8	
	Green tons per acre ^b					
White/red pine	102.8	143.0	.0	.0	108.5	
Spruce/fir	97.5	80.7	30.3	.0	80.8	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	118.9	96.6	11.7	.0	95.0	
Aspen/birch	.0	118.3	47.0	.0	83.4	
All groups	108.2	97.2	24.3	.0	92.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 21.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Chittenden County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,961.0**	.0	156.4**	.0	2,117.4	53
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	442.1**	56.0**	498.1	90
Elm/ash/red maple	578.1**	.0	.0	.0	578.1	71
Northern hardwoods	10,139.7	1,022.9**	1,516.9*	.0	12,679.5	13
Aspen/birch	.0	1,661.5**	.0	.0	1,661.5	69
Total, all groups	12,678.8	2,684.4	2,115.4	56.0	17,534.6	7.3
Sampling error (percent)	12	57	27	100	7.3	
	Thousand acres					Percent
White/red pine	20.7**	.0	7.2**	.0	27.9	49
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	7.3**	6.4**	13.7	71
Elm/ash/red maple	13.5**	.0	.0	.0	13.5	68
Northern hardwoods	91.1	7.0**	48.2*	.0	146.3	12
Aspen/birch	.0	13.5**	.0	.0	13.5	68
Total, all groups	125.3	20.5	62.7	6.4	214.9	3.8
Sampling error (percent)	12	56	20	100	3.8	
	Green tons per acre ^b					
White/red pine	94.7	.0	21.7	.0	75.9	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	60.6	8.8	36.4	
Elm/ash/red maple	42.8	.0	.0	.0	42.8	
Northern hardwoods	111.3	146.1	31.5	.0	86.7	
Aspen/birch	.0	123.1	.0	.0	123.1	
All groups	101.2	130.9	33.7	8.8	81.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 22.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Essex County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	.0	.0	.0	-
Spruce/fir	5,406.4*	4,125.4*	980.7**	.0	10,512.5	24
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	164.6**	.0	.0	.0	164.6	100
Northern hardwoods	10,836.5	9,137.0	1,568.8*	.0	21,542.3	11
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	16,407.5	13,262.4	2,549.5	.0	32,219.4	4.7
Sampling error (percent)	17	17	35	-	4.7	
	Thousand acres					Percent
White/red pine	.0	.0	.0	.0	.0	-
Spruce/fir	44.2*	51.5*	20.0**	.0	115.7	22
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	7.4**	.0	.0	.0	7.4	100
Northern hardwoods	110.5	110.6	49.5**	.0	270.6	10
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	162.1	162.1	69.5	.0	393.7	2.0
Sampling error (percent)	16	16	25	-	2.0	
	Green tons per acre ^b					
White/red pine	.0	.0	.0	.0	.0	
Spruce/fir	122.3	80.1	49.0	.0	90.9	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	22.2	.0	.0	.0	22.2	
Northern hardwoods	98.1	82.6	31.7	.0	79.6	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	101.2	81.8	36.7	.0	81.8	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 23.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Franklin/Grand Isle Counties, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	6,905.2*	.0	.0	.0	6,905.2	31
Spruce/fir	1,157.8**	616.2	152.3**	.0	1,926.3	61
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	9.2**	.0	.0	9.2	100
Elm/ash/red maple	.0	850.7**	72.6**	.0	923.3	60
Northern hardwoods	9,315.4	2,251.9*	236.7**	.0	11,804.0	18
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	17,378.4	3,728.0	461.6	.0	21,568.0	7.5
Sampling error (percent)	13	30	49	-	7.5	
	----- Thousand acres -----					Percent
White/red pine	67.7*	.0	.0	.0	67.7	29
Spruce/fir	7.3**	6.0	6.9**	.0	20.2	50
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	2.9**	.0	.0	2.9	100
Elm/ash/red maple	.0	21.3**	13.8**	.0	35.1	42
Northern hardwoods	100.2	38.2*	13.8**	.0	152.2	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	175.2	68.4	34.5	.0	278.1	3.4
Sampling error (percent)	12	29	28	-	3.4	
	----- Green tons per acre ^b -----					
White/red pine	102.0	.0	.0	.0	102.0	
Spruce/fir	158.6	102.7	22.1	.0	95.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	3.2	.0	.0	3.2	
Elm/ash/red maple	.0	39.9	5.3	.0	26.3	
Northern hardwoods	93.0	59.0	17.2	.0	77.6	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	99.2	54.5	13.4	.0	77.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 24.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Lamoille County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	898.9**	.0	.0	.0	898.9	100
Spruce/fir	1,673.5**	.0	293.3**	.0	1,966.8	67
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	13,605.5	7,040.5	14.2**	.0	20,660.2	9
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	16,177.9	7,040.5	307.5	.0	23,525.9	5.7
Sampling error (percent)	13	29	58	-	5.7	
	Thousand acres					Percent
White/red pine	7.2**	.0	.0	.0	7.2	100
Spruce/fir	14.6**	.0	15.8**	.0	30.4	43
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	124.7	65.3*	7.9**	.0	197.9	8
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	146.5	65.3	23.7	.0	235.5	1.7
Sampling error (percent)	12	27	12	-	1.7	
	Green tons per acre ^b					
White/red pine	124.8	.0	.0	.0	124.8	
Spruce/fir	114.6	.0	18.6	.0	64.7	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	109.1	107.8	1.8	.0	104.4	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	110.4	107.8	13.0	.0	99.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 25.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Orange County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	6,968.7*	.0	338.7**	.0	7,307.4	32
Spruce/fir	3,891.3*	725.9**	298.7**	.0	4,915.9	28
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	1,768.0**	.0	.0	.0	1,768.0	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	15,810.9	3,948.8*	65.8**	.0	19,825.5	15
Aspen/birch	593.6**	911.3**	.0	.0	1,504.9	71
Total, all groups	29,032.5	5,586.0	703.2	.0	35,321.7	6.1
Sampling error (percent)	10	36	62	-	6.1	
	Thousand acres					Percent
White/red pine	67.2*	.0	12.7**	.0	79.9	27
Spruce/fir	44.3*	7.7**	7.8**	.0	59.8	25
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	7.5**	.0	.0	.0	7.5	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	135.0	37.8*	6.8**	.0	179.6	13
Aspen/birch	7.5**	7.6**	.0	.0	15.1	69
Total, all groups	261.5	53.1	27.3	.0	341.9	4.0
Sampling error (percent)	9	35	50	-	4.0	
	Green tons per acre ^b					
White/red pine	103.7	.0	26.7	.0	91.5	
Spruce/fir	87.8	94.3	38.3	.0	82.2	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	235.7	.0	.0	.0	235.7	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	117.1	104.5	9.7	.0	110.4	
Aspen/birch	79.1	119.9	.0	.0	99.7	
All groups	111.0	105.2	25.8	.0	103.3	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 26.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Orleans County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	.0	254.8**	.0	.0	254.8	100
Spruce/fir	8,687.2*	2,077.1**	1,517.7**	.0	12,282.0	18
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	6,088.6*	4,863.8*	.0	.0	10,952.4	20
Aspen/birch	.0	2,100.9**	.0	.0	2,100.9	57
Total, all groups	14,775.8	9,296.6	1,517.7	.0	25,590.1	6.2
Sampling error (percent)	17	23	61	-	6.2	
	----- Thousand acres -----					Percent
White/red pine	.0	7.4**	.0	.0	7.4	100
Spruce/fir	96.3	30.4*	30.0*	.0	156.7	16
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	67.9*	50.7*	.0	.0	118.6	19
Aspen/birch	.0	22.4**	.0	.0	22.4	56
Total, all groups	164.2	110.9	30.0	.0	305.1	3.9
Sampling error (percent)	15	22	49	-	3.9	
	----- Green tons per acre ^b -----					
White/red pine	.0	34.4	.0	.0	34.4	
Spruce/fir	90.2	68.3	50.6	.0	78.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	89.7	95.9	.0	.0	92.3	
Aspen/birch	.0	93.8	.0	.0	93.8	
All groups	90.0	83.8	50.6	.0	83.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 27.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Rutland County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	7,349.4*	2,257.7**	.0	.0	9,607.1	23
Spruce/fir	1,136.0**	.0	536.7**	.0	1,672.7	53
Oak/pine	595.1**	.0	.0	.0	595.1	100
Oak/hickory	.0	2,665.6*	336.9**	.0	3,002.5	45
Elm/ash/red maple	.0	417.8**	258.2**	.0	676.0	73
Northern hardwoods	19,713.5	3,559.7*	440.4**	.0	23,713.6	12
Aspen/birch	.0	459.0**	.0	.0	459.0	100
Total, all groups	28,794.0	9,359.8	1,572.2	.0	39,726.0	4.6
Sampling error (percent)	10	25	40	-	4.6	
	Thousand acres					Percent
White/red pine	84.0*	28.4*	.0	.0	112.4	21
Spruce/fir	14.3**	.0	19.1**	.0	33.4	44
Oak/pine	6.7**	.0	.0	.0	6.7	100
Oak/hickory	.0	27.6*	6.7**	.0	34.3	43
Elm/ash/red maple	.0	7.0**	6.7**	.0	13.7	71
Northern hardwoods	184.5	33.5*	19.1*	.0	237.1	11
Aspen/birch	.0	7.1 **	.0	.0	7.1	100
Total, all groups	289.5	103.6	51.6	.0	444.7	1.3
Sampling error (percent)	9	23	31	-	1.3	
	Green tons per acre ^b					
White/red pine	87.5	79.5	.0	.0	85.5	
Spruce/fir	79.4	.0	28.1	.0	50.1	
Oak/pine	88.8	.0	.0	.0	88.8	
Oak/hickory	.0	96.6	50.3	.0	87.5	
Elm/ash/red maple	.0	59.7	38.5	.0	49.3	
Northern hardwoods	106.8	106.3	23.1	.0	100.0	
Aspen/birch	.0	64.6	.0	.0	64.6	
All groups	99.5	90.3	30.5	.0	89.3	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 28.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Washington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	3,250.5**	558.4**	.0	.0	3,808.9	51
Spruce/fir	5,806.7*	1,313.8**	.0	.0	7,120.5	35
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	663.1**	.0	.0	663.1	100
Elm/ash/red maple	665.3**	.0	143.2**	.0	808.5	84
Northern hardwoods	12,654.3	4,027.5*	735.6**	.0	17,417.4	14
Aspen/birch	727.3**	4,104.0*	.0	.0	4,831.3	40
Total, all groups	23,104.1	10,666.8	878.8	.0	34,649.7	4.9
Sampling error (percent)	12	22	52	-	4.9	
	----- Thousand acres -----					Percent
White/red pine	22.2**	7.4**	.0	.0	29.6	49
Spruce/fir	44.4*	14.9**	.0	.0	59.3	33
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	7.4**	.0	.0	7.4	100
Elm/ash/red maple	7.4**	.0	6.6**	.0	14.0	71
Northern hardwoods	133.0	44.5*	21.5**	.0	199.0	14
Aspen/birch	7.4**	37.1*	.0	.0	44.5	38
Total, all groups	214.4	111.3	28.1	.0	353.8	2.5
Sampling error (percent)	11	20	38	-	2.5	
	----- Green tons per acre ^b -----					
White/red pine	146.4	75.5	.0	.0	128.7	
Spruce/fir	130.8	88.2	.0	.0	120.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	89.6	.0	.0	89.6	
Elm/ash/red maple	89.9	.0	21.7	.0	57.8	
Northern hardwoods	95.1	90.5	34.2	.0	87.5	
Aspen/birch	98.3	110.6	.0	.0	108.6	
All groups	107.8	95.8	31.3	.0	97.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 29.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Windham County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	10,510.8*	.0	.0	.0	10,510.8	28
Spruce/fir	1,970.9**	.0	227.9**	.0	2,198.8	53
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	3,512.4*	303.5**	.0	.0	3,815.9	44
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	20,684.2	2,660.4*	770.8**	.0	24,115.4	12
Aspen/birch	2,100.0**	.0	.0	.0	2,100.0	70
Total, all groups	38,778.3	2,963.9	998.7	.0	42,740.9	4.6
Sampling error (percent)	7	46	58	-	4.6	
	----- Thousand acres -----					Percent
White/red pine	85.0*	.0	.0	.0	85.0	26
Spruce/fir	21.4**	.0	7.5**	.0	28.9	49
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	35.8*	7.4**	.0	.0	43.2	40
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	206.6	28.6**	14.3**	.0	249.5	11
Aspen/birch	14.4**	.0	.0	.0	14.4	69
Total, all groups	363.2	36.0	21.8	.0	421.0	1.2
Sampling error (percent)	5	43	57	-	1.2	
	----- Green tons per acre ^b -----					
White/red pine	123.7	.0	.0	.0	123.7	
Spruce/fir	92.1	.0	30.4	.0	76.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	98.1	41.0	.0	.0	88.3	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	100.1	93.0	53.9	.0	96.7	
Aspen/birch	145.8	.0	.0	.0	145.8	
All groups	106.8	82.3	45.8	.0	101.5	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 30.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Windsor County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	9,915.5*	1,006.0**	621.1**	.0	11,542.6	23
Spruce/fir	2,581.2**	557.5**	.0	.0	3,138.7	45
Oak/pine	.0	507.3**	.0	.0	507.3	100
Oak/hickory	683.3**	.0	.0	.0	683.3	100
Elm/ash/red maple	341.9**	.0	.0	.0	341.9	100
Northern hardwoods	23,006.4	4,116.0*	.0	.0	27,122.4	11
Aspen/birch	709.5**	2,203.4**	128.6**	.0	3,041.5	48
Total, all groups	37,237.8	8,390.2	749.7	.0	46,377.7	4.0
Sampling error (percent)	8	27	61	-	4.0	
	----- Thousand acres -----					Percent
White/red pine	100.9*	7.0**	17.6**	.0	125.5	19
Spruce/fir	27.6*	7.0**	.0	.0	34.6	44
Oak/pine	.0	6.8**	.0	.0	6.8	100
Oak/hickory	7.0**	.0	.0	.0	7.0	100
Elm/ash/red maple	6.8**	.0	.0	.0	6.8	100
Northern hardwoods	236.7	48.6*	.0	.0	285.3	10
Aspen/birch	7.0**	20.9**	6.8**	.0	34.7	44
Total, all groups	386.0	90.3	24.4	.0	500.7	2.2
Sampling error (percent)	7	26	59	-	2.2	
	----- Green tons per acre ^b -----					
White/red pine	98.3	143.7	35.3	.0	92.0	
Spruce/fir	93.5	79.6	.0	.0	90.7	
Oak/pine	.0	74.6	.0	.0	74.6	
Oak/hickory	97.6	.0	.0	.0	97.6	
Elm/ash/red maple	50.3	.0	.0	.0	50.3	
Northern hardwoods	97.2	84.7	.0	.0	95.1	
Aspen/birch	101.4	105.4	18.9	.0	87.7	
All groups	96.5	92.9	30.7	.0	92.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

MAJOR SPECIES BY WEIGHT million tons

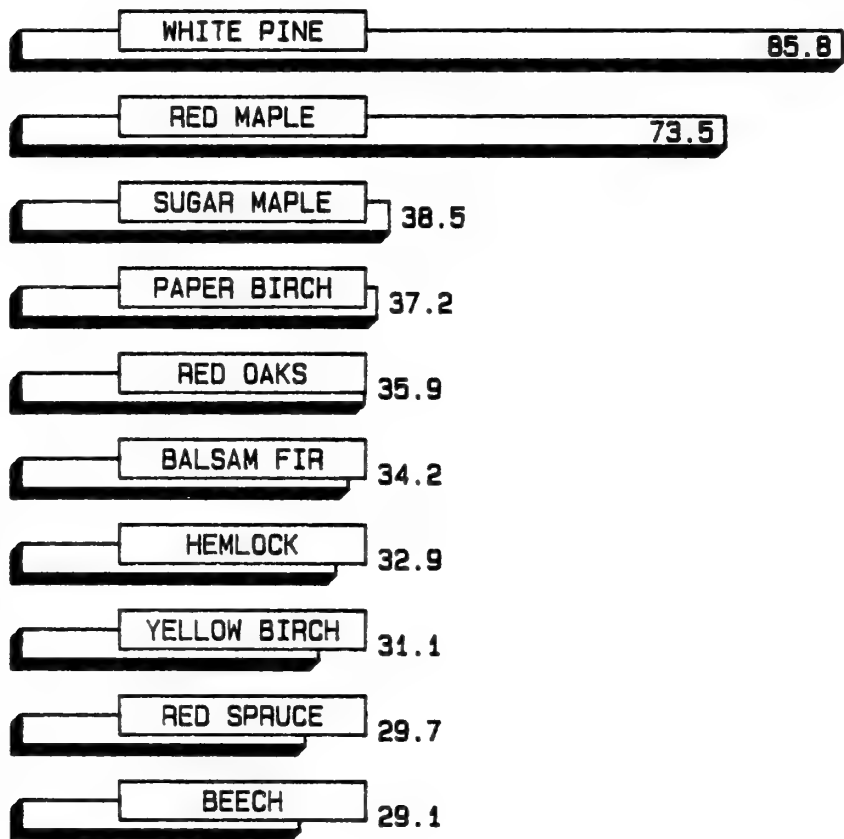


Table 31.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	<u>Thousand trees</u>				
Balsam fir	231,542	54,000	4,350	0	289,892
Tamarack	0	1,290	187	0	1,477
White spruce	24,704	8,230	1,206	0	34,140
Black spruce	2,785	612	51	0	3,448
Red spruce	90,912	53,701	8,846	163	153,622
Red pine	0	654	412	17	1,083
White pine	35,645	33,640	12,801	1,106	83,192
Northern white-cedar	43,984	17,346	2,244	18	63,592
Hemlock	114,794	50,078	15,253	330	180,455
Other softwoods	1,426	686	0	0	2,112
Total softwoods	545,792	220,237	45,350	1,634	813,013
Sugar maple	294,380	116,986	36,774	3,177	451,317
Soft maples	129,364	66,702	16,159	523	212,748
Yellow birch	69,937	45,225	13,761	1,183	130,106
Paper birch	39,980	50,080	7,278	48	97,386
Gray birch	29,648	6,398	0	0	36,046
Beech	202,299	39,113	12,754	666	254,832
White ash	35,091	20,535	6,012	169	61,807
Black ash	5,452	1,918	330	0	7,700
Aspen	17,797	11,832	4,194	99	33,922
White oaks	4,236	1,622	489	72	6,419
Red oaks	6,910	7,732	4,817	350	19,809
Basswood	4,305	2,732	924	27	7,988
Elm	24,269	4,888	1,103	35	30,295
Other commercial hardwoods	47,078	23,501	4,508	132	75,219
Noncommercial hardwoods	230,334	27,603	623	0	258,560
Total hardwoods	1,141,080	426,867	109,726	6,481	1,684,154
Total, all species	1,686,872	647,104	155,076	8,115	2,497,167

Table 31.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- Thousand green tons -----					
Balsam fir	5,425.2	11,787.6	3,322.4	.0	20,535.2
Tamarack	.0	260.1	147.5	.0	407.6
White spruce	755.6	2,308.6	1,077.3	.0	4,141.5
Black spruce	111.7	195.0	38.2	.0	344.9
Red spruce	2,540.7	13,553.8	8,316.6	512.7	24,923.8
Red pine	.0	182.4	659.4	103.8	945.6
White pine	1,022.0	8,683.0	15,100.4	5,205.6	30,011.0
Northern white-cedar	739.1	2,392.2	935.4	18.6	4,085.3
Hemlock	2,602.7	12,118.2	14,472.6	1,071.6	30,265.1
Other softwoods	45.9	84.6	.0	.0	130.5
Total softwoods	13,242.9	51,565.5	44,069.8	6,912.3	115,790.5
Sugar maple	7,633.3	33,375.5	40,391.7	12,417.4	93,817.9
Soft maples	3,188.5	17,866.7	15,862.6	1,695.0	38,612.8
Yellow birch	2,154.0	13,507.1	14,911.1	3,976.5	34,548.7
Paper birch	1,172.3	15,994.1	8,748.0	192.6	26,107.0
Gray birch	1,124.6	1,102.1	.0	.0	2,226.7
Beech	5,426.2	11,467.9	14,512.2	2,262.6	33,668.9
White ash	1,048.9	5,571.6	6,143.8	658.8	13,423.1
Black ash	190.1	458.2	309.0	.0	957.3
Aspen	676.6	3,366.8	4,643.2	279.6	8,966.2
White oaks	30.6	570.4	577.1	341.6	1,519.7
Red oaks	303.1	2,395.4	5,527.0	2,230.4	10,455.9
Basswood	159.3	788.8	991.9	110.3	2,050.3
Elm	395.8	1,422.3	1,076.0	127.6	3,021.7
Other commercial hardwoods	1,281.1	5,920.4	4,432.6	452.5	12,086.6
Noncommercial hardwoods	4,404.6	4,784.6	655.0	.0	9,844.2
Total hardwoods	29,189.0	118,591.9	118,781.2	24,744.9	291,307.0
Total, all species	42,431.9	170,157.4	162,851.0	31,657.2	407,097.5

Table 32.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Addison County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	9,395	560	0	0	9,955
Tamarack	0	0	57	0	57
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,829	3,273	313	0	11,415
Red pine	0	0	0	0	0
White pine	2,425	2,903	429	18	5,775
Northern white-cedar	0	14	0	0	14
Hemlock	12,017	2,790	629	56	15,492
Other softwoods	0	107	0	0	107
Total softwoods	31,666	9,647	1,428	74	42,815
Sugar maple	16,564	5,879	2,210	84	24,737
Soft maples	9,395	4,701	699	18	14,813
Yellow birch	3,637	5,112	1,072	19	9,840
Paper birch	1,566	3,665	672	0	5,903
Gray birch	1,566	56	0	0	1,622
Beech	32,675	2,715	929	32	36,351
White ash	1,212	2,013	479	0	3,704
Black ash	0	0	0	0	0
Aspen	0	816	460	0	1,276
White oaks	0	0	71	12	83
Red oaks	0	642	509	34	1,185
Basswood	2,778	602	158	0	3,538
Elm	3,991	1,401	307	0	5,699
Other commercial hardwoods	6,414	1,264	359	0	8,037
Noncommercial hardwoods	33,713	3,725	0	0	37,438
Total hardwoods	113,511	32,591	7,925	199	154,226
Total, all species	145,177	42,238	9,353	273	197,041

Table 32.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- Thousand green tons -----					
Balsam fir	223.2	140.4	.0	.0	363.6
Tamarack	.0	.0	36.4	.0	36.4
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	328.2	760.7	226.1	.0	1,315.0
Red pine	.0	.0	.0	.0	.0
White pine	39.3	782.7	371.9	63.3	1,257.2
Northern white-cedar	.0	3.2	.0	.0	3.2
Hemlock	123.6	492.5	746.7	219.3	1,582.1
Other softwoods	.0	11.0	.0	.0	11.0
Total softwoods	714.3	2,190.5	1,381.1	282.6	4,568.5
Sugar maple	436.2	1,805.0	2,545.9	260.1	5,047.2
Soft maples	300.5	1,209.5	600.4	85.5	2,195.9
Yellow birch	104.0	1,415.3	1,190.8	52.9	2,763.0
Paper birch	92.4	1,198.0	855.1	.0	2,145.5
Gray birch	6.8	6.4	.0	.0	13.2
Beech	824.0	934.7	1,014.3	34.8	2,807.8
White ash	7.2	520.5	421.7	.0	949.4
Black ash	.0	.0	.0	.0	.0
Aspen	.0	307.3	354.7	.0	662.0
White oaks	.0	.0	118.2	28.6	146.8
Red oaks	.0	174.1	581.7	106.8	862.6
Basswood	150.2	110.5	205.4	.0	466.1
Elm	38.5	507.5	301.0	.0	847.0
Other commercial hardwoods	122.3	360.4	302.9	.0	785.6
Noncommercial hardwoods	644.0	489.7	.0	.0	1,133.7
Total hardwoods	2,726.1	9,038.9	8,492.1	568.7	20,825.8
Total, all species	3,440.4	11,229.4	9,873.2	851.3	25,394.3

Table 33.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Bennington County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	7,225	872	17	0	8,114
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,300	2,234	428	0	9,962
Red pine	0	0	0	0	0
White pine	0	128	373	17	518
Northern white-cedar	0	0	0	0	0
Hemlock	1,499	1,385	407	17	3,308
Other softwoods	0	23	0	0	23
Total softwoods	16,024	4,642	1,225	34	21,925
Sugar maple	11,842	7,844	4,290	422	24,398
Soft maples	16,758	5,764	2,740	160	25,422
Yellow birch	4,226	3,526	2,013	121	9,886
Paper birch	1,363	1,705	551	0	3,619
Gray birch	0	62	0	0	62
Beech	56,564	8,748	2,488	103	67,903
White ash	2,605	282	188	28	3,103
Black ash	0	31	0	0	31
Aspen	1,499	316	172	0	1,987
White oaks	0	509	200	13	722
Red oaks	1,363	555	729	26	2,673
Basswood	0	0	35	0	35
Elm	0	0	26	0	26
Other commercial hardwoods	2,666	2,389	722	26	5,803
Noncommercial hardwoods	31,389	2,111	87	0	33,587
Total hardwoods	130,275	33,842	14,241	899	179,257
Total, all species	146,299	38,484	15,466	933	201,182

Table 33.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand green tons -----				
Balsam fir	111.5	195.8	13.8	.0	321.1
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	175.3	519.5	399.4	.0	1,094.2
Red pine	.0	.0	.0	.0	.0
White pine	.0	27.8	522.3	56.2	606.3
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	90.2	278.9	403.8	47.8	820.7
Other softwoods	.0	1.6	.0	.0	1.6
Total softwoods	377.0	1,023.6	1,339.3	104.0	2,843.9
Sugar maple	311.8	2,450.7	4,842.4	1,340.3	8,945.2
Soft maples	594.9	1,606.3	2,982.7	520.2	5,704.1
Yellow birch	131.5	1,094.9	2,071.6	366.7	3,664.7
Paper birch	91.3	649.2	693.3	.0	1,433.8
Gray birch	.0	10.6	.0	.0	10.6
Beech	1,734.8	2,467.1	2,764.8	412.6	7,379.3
White ash	60.1	120.4	257.1	76.6	514.2
Black ash	.0	7.4	.0	.0	7.4
Aspen	21.2	82.2	164.6	.0	268.0
White oaks	.0	185.5	240.7	40.2	466.4
Red oaks	26.9	245.9	899.4	92.7	1,264.9
Basswood	.0	.0	35.5	.0	35.5
Elm	.0	.0	31.0	.0	31.0
Other commercial hardwoods	102.1	715.3	656.6	95.6	1,569.6
Noncommercial hardwoods	765.7	384.9	107.1	.0	1,257.7
Total hardwoods	3,840.3	10,020.4	15,746.8	2,944.9	32,552.4
Total, all species	4,217.3	11,044.0	17,086.1	3,048.9	35,396.3

Table 34.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Caledonia County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	<u>Thousand trees</u>				
Balsam fir	47,594	8,773	572	0	56,939
Tamarack	0	1,044	29	0	1,073
White spruce	8,688	2,830	359	0	11,877
Black spruce	0	0	34	0	34
Red spruce	5,982	3,924	670	33	10,609
Red pine	0	0	0	0	0
White pine	0	1,749	1,211	51	3,011
Northern white-cedar	9,128	2,080	384	0	11,592
Hemlock	6,048	4,114	491	16	10,669
Other softwoods	0	15	0	0	15
Total softwoods	77,440	24,529	3,750	100	105,819
Sugar maple	31,461	6,993	2,605	214	41,273
Soft maples	9,128	2,432	264	13	11,837
Yellow birch	4,564	2,913	611	49	8,137
Paper birch	3,024	3,883	345	0	7,252
Gray birch	0	0	0	0	0
Beech	2,958	716	136	28	3,838
White ash	3,079	1,367	396	27	4,869
Black ash	0	383	59	0	442
Aspen	0	1,661	218	0	1,879
White oaks	0	0	0	0	0
Red oaks	0	0	38	0	38
Basswood	0	68	58	0	126
Elm	0	35	0	0	35
Other commercial hardwoods	0	586	143	0	729
Noncommercial hardwoods	5,927	832	0	0	6,759
Total hardwoods	60,141	21,869	4,873	331	87,214
Total, all species	137,581	46,398	8,623	431	193,033

Table 34.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- Thousand green tons -----					
Balsam fir	1,305.9	1,910.5	441.1	.0	3,657.5
Tamarack	.0	184.7	36.9	.0	221.6
White spruce	393.0	785.6	302.5	.0	1,481.1
Black spruce	.0	.0	23.8	.0	23.8
Red spruce	105.0	953.1	613.2	106.3	1,777.6
Red pine	.0	.0	.0	.0	.0
White pine	.0	538.6	1,587.3	191.9	2,317.8
Northern white-cedar	144.0	302.5	165.9	.0	612.4
Hemlock	197.2	941.7	530.4	46.1	1,715.4
Other softwoods	.0	7.3	.0	.0	7.3
Total softwoods	2,145.1	5,624.0	3,701.1	344.3	11,814.5
Sugar maple	896.0	2,165.8	3,196.4	945.3	7,203.5
Soft maples	185.8	678.0	261.7	35.2	1,160.7
Yellow birch	49.9	889.3	769.5	194.4	1,903.1
Paper birch	81.6	975.9	554.2	.0	1,611.7
Gray birch	.0	.0	.0	.0	.0
Beech	25.7	229.4	217.1	104.3	576.5
White ash	11.9	421.9	474.3	104.8	1,012.9
Black ash	.0	123.9	39.2	.0	163.1
Aspen	.0	468.6	310.4	.0	779.0
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	43.8	.0	43.8
Basswood	.0	21.1	102.9	.0	124.0
Elm	.0	4.3	.0	.0	4.3
Other commercial hardwoods	.0	161.0	143.0	.0	304.0
Noncommercial hardwoods	173.8	178.0	.0	.0	351.8
Total hardwoods	1,424.7	6,317.2	6,112.5	1,384.0	15,238.4
Total, all species	3,569.8	11,941.2	9,813.6	1,728.3	27,052.9

Table 35.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Chittenden County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	0	350	16	0	366
Tamarack	0	31	0	0	31
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	0	47	63	0	110
Red pine	0	0	0	0	0
White pine	0	1,193	656	0	1,849
Northern white-cedar	0	94	0	0	94
Hemlock	5,598	2,219	656	0	8,473
Other softwoods	0	265	0	0	265
Total softwoods	5,598	4,199	1,391	0	11,188
Sugar maple	22,555	7,190	2,659	106	32,510
Soft maples	2,832	1,474	332	52	4,690
Yellow birch	4,294	1,500	158	14	5,966
Paper birch	0	815	115	0	930
Gray birch	16,628	296	0	0	16,924
Beech	2,819	1,629	746	27	5,221
White ash	1,410	3,424	833	0	5,667
Black ash	0	0	0	0	0
Aspen	0	1,067	125	0	1,192
White oaks	0	0	0	0	0
Red oaks	1,370	216	189	20	1,795
Basswood	0	302	69	6	377
Elm	7,310	551	115	11	7,987
Other commercial hardwoods	2,832	1,630	159	11	4,632
Noncommercial hardwoods	23,700	1,071	0	0	24,771
Total hardwoods	85,750	21,165	5,500	247	112,662
Total, all species	91,348	25,364	6,891	247	123,850

Table 35.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand green tons -----				
Balsam fir	.0	77.3	16.4	.0	93.7
Tamarack	.0	7.2	.0	.0	7.2
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	.0	21.1	50.4	.0	71.5
Red pine	.0	.0	.0	.0	.0
White pine	.0	343.6	588.9	.0	932.5
Northern white-cedar	.0	8.4	.0	.0	8.4
Hemlock	99.9	519.2	551.6	.0	1,170.7
Other softwoods	.0	20.3	.0	.0	20.3
Total softwoods	99.9	997.1	1,207.3	.0	2,304.3
Sugar maple	691.3	2,111.2	3,095.4	432.5	6,330.4
Soft maples	14.0	403.8	330.1	131.2	879.1
Yellow birch	170.0	378.8	172.1	27.5	748.4
Paper birch	.0	311.7	110.4	.0	422.1
Gray birch	761.9	34.1	.0	.0	796.0
Beech	59.9	601.3	974.2	95.8	1,731.2
White ash	12.9	799.1	817.7	.0	1,629.7
Black ash	.0	.0	.0	.0	.0
Aspen	.0	264.4	112.6	.0	377.0
White oaks	.0	.0	.0	.0	.0
Red oaks	87.2	39.1	242.3	75.6	444.2
Basswood	.0	98.2	64.7	47.1	210.0
Elm	104.2	96.4	108.2	40.9	349.7
Other commercial hardwoods	23.1	382.1	130.7	21.7	557.6
Noncommercial hardwoods	508.8	246.1	.0	.0	754.9
Total hardwoods	2,433.3	5,766.3	6,158.4	872.3	15,230.3
Total, all species	2,533.2	6,763.4	7,365.7	872.3	17,534.6

Table 36.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Essex County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	----- Thousand trees -----				
Balsam fir	65,675	15,942	1,533	0	83,150
Tamarack	0	17	17	0	34
White spruce	8,976	1,630	265	0	10,871
Black spruce	0	90	0	0	90
Red spruce	10,448	4,160	907	0	15,515
Red pine	0	0	0	0	0
White pine	0	173	99	0	272
Northern white-cedar	0	137	68	0	205
Hemlock	2,992	704	237	23	3,956
Other softwoods	0	0	0	0	0
Total softwoods	88,091	22,853	3,126	23	114,093
Sugar maple	26,873	10,208	2,102	84	39,267
Soft maples	16,428	6,969	2,102	31	25,530
Yellow birch	17,914	6,667	2,600	319	27,500
Paper birch	5,949	2,799	340	0	9,088
Gray birch	0	98	0	0	98
Beech	11,944	1,886	267	27	14,124
White ash	2,992	1,072	237	0	4,301
Black ash	1,493	160	0	0	1,653
Aspen	2,985	1,573	149	33	4,740
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	0	0	0	0
Elm	0	68	38	0	106
Other commercial hardwoods	1,496	150	67	0	1,713
Noncommercial hardwoods	43,302	1,750	0	0	45,052
Total hardwoods	131,376	33,400	7,902	494	173,172
Total, all species	219,467	56,253	11,028	517	287,265

Table 36.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
<hr/> <div>----- Thousand green tons -----</div> <hr/>					
Balsam fir	1,046.1	3,484.2	1,175.4	.0	5,705.7
Tamarack	.0	5.7	15.9	.0	21.6
White spruce	223.8	431.7	248.8	.0	904.3
Black spruce	.0	46.1	.0	.0	46.1
Red spruce	153.6	1,121.2	839.7	.0	2,114.5
Red pine	.0	.0	.0	.0	.0
White pine	.0	74.5	86.8	.0	161.3
Northern white-cedar	.0	28.6	29.7	.0	58.3
Hemlock	50.6	180.7	267.0	80.2	578.5
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,474.1	5,372.7	2,663.3	80.2	9,590.3
Sugar maple	589.3	2,821.0	2,135.8	311.3	5,857.4
Soft maples	311.5	2,189.3	2,136.9	87.5	4,725.2
Yellow birch	731.7	2,138.4	3,012.7	1,159.6	7,042.4
Paper birch	110.7	745.4	426.6	.0	1,282.7
Gray birch	.0	39.2	.0	.0	39.2
Beech	504.3	540.3	321.3	101.1	1,467.0
White ash	126.7	249.6	255.3	.0	631.6
Black ash	32.4	41.0	.0	.0	73.4
Aspen	92.4	390.6	200.6	100.7	784.3
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	.0	.0	.0	.0
Elm	.0	14.0	42.7	.0	56.7
Other commercial hardwoods	7.6	39.4	69.8	.0	116.8
Noncommercial hardwoods	357.7	194.7	.0	.0	552.4
Total hardwoods	2,864.3	9,402.9	8,601.7	1,760.2	22,629.1
Total, all species	4,338.4	14,775.6	11,265.0	1,840.4	32,219.4

Table 37.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Franklin/Grand Isle Counties, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	5,291	2,290	30	0	7,611
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	4,669	2,435	356	0	7,460
Red pine	0	0	0	0	0
White pine	0	1,412	960	88	2,460
Northern white-cedar	1,230	1,688	0	0	2,918
Hemlock	12,129	4,483	2,369	42	19,023
Other softwoods	0	0	0	0	0
Total softwoods	23,319	12,308	3,715	130	39,472
Sugar maple	25,339	6,111	1,748	197	33,395
Soft maples	8,762	5,008	818	12	14,600
Yellow birch	4,531	2,240	874	29	7,674
Paper birch	0	477	213	0	690
Gray birch	4,159	753	0	0	4,912
Beech	4,531	497	533	84	5,645
White ash	2,988	1,300	237	50	4,575
Black ash	2,459	603	0	0	3,062
Aspen	0	344	47	18	409
White oaks	0	117	47	18	182
Red oaks	1,465	244	0	0	1,709
Basswood	0	68	158	0	226
Elm	0	868	135	0	1,003
Other commercial hardwoods	2,875	1,036	167	0	4,078
Noncommercial hardwoods	9,587	1,111	67	0	10,765
Total hardwoods	66,696	20,777	5,044	408	92,925
Total, all species	90,015	33,085	8,759	538	132,397

Table 37.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- Thousand green tons -----					
Balsam fir	186.0	356.3	46.7	.0	589.0
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	229.4	669.5	360.1	.0	1,259.0
Red pine	.0	.0	.0	.0	.0
White pine	.0	387.7	1,178.6	401.9	1,968.2
Northern white-cedar	9.3	252.4	.0	.0	261.7
Hemlock	249.1	1,173.6	2,296.4	142.6	3,861.7
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	673.8	2,839.5	3,881.8	544.5	7,939.6
Sugar maple	537.7	1,765.1	1,978.8	761.2	5,042.8
Soft maples	87.1	1,178.8	867.3	35.2	2,168.4
Yellow birch	156.1	571.8	1,010.6	73.6	1,812.1
Paper birch	.0	126.7	202.7	.0	329.4
Gray birch	89.5	151.1	.0	.0	240.6
Beech	55.2	115.3	786.8	290.0	1,247.3
White ash	112.8	355.1	254.5	161.3	883.7
Black ash	32.3	103.1	.0	.0	135.4
Aspen	.0	64.2	44.2	62.8	171.2
White oaks	.0	36.2	68.4	64.9	169.5
Red oaks	4.2	63.2	.0	.0	67.4
Basswood	.0	12.9	153.2	.0	166.1
Elm	.0	235.1	127.8	.0	362.9
Other commercial hardwoods	13.8	206.8	154.2	.0	374.8
Noncommercial hardwoods	174.1	183.0	99.7	.0	456.8
Total hardwoods	1,262.8	5,168.4	5,748.2	1,449.0	13,628.4
Total, all species	1,936.6	8,007.9	9,630.0	1,993.5	21,568.0

Table 38.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Lamoille County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	10,541	2,900	137	0	13,578
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	1,459	2,747	565	34	4,805
Red pine	0	0	0	0	0
White pine	0	55	69	0	124
Northern white-cedar	0	0	62	0	62
Hemlock	11,755	5,083	835	0	17,673
Other softwoods	0	0	0	0	0
Total softwoods	23,755	10,785	1,668	34	36,242
Sugar maple	20,636	10,134	2,771	284	33,825
Soft maples	11,755	6,200	834	10	18,799
Yellow birch	7,336	4,251	1,003	133	12,723
Paper birch	1,502	1,744	309	0	3,555
Gray birch	0	1,759	0	0	1,759
Beech	13,385	2,734	1,280	101	17,500
White ash	1,459	585	100	0	2,144
Black ash	0	0	0	0	0
Aspen	0	0	52	0	52
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	156	17	0	173
Elm	1,602	219	0	0	1,821
Other commercial hardwoods	2,917	196	40	0	3,153
Noncommercial hardwoods	10,541	932	0	0	11,473
Total hardwoods	71,133	28,910	6,406	528	106,977
Total, all species	94,888	39,695	8,074	562	143,219

Table 38.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand green tons -----				
Balsam fir	236.1	621.3	98.8	.0	956.2
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	15.1	684.5	620.5	93.9	1,414.0
Red pine	.0	.0	.0	.0	.0
White pine	.0	16.1	79.1	.0	95.2
Northern white-cedar	.0	.0	19.3	.0	19.3
Hemlock	260.8	1,219.8	684.9	.0	2,165.5
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	512.0	2,541.7	1,502.6	93.9	4,650.2
Sugar maple	677.9	2,585.0	2,802.7	1,062.9	7,128.5
Soft maples	522.2	1,381.1	975.6	54.1	2,933.0
Yellow birch	269.4	1,181.6	1,038.8	587.2	3,077.0
Paper birch	35.0	611.5	356.3	.0	1,002.8
Gray birch	.0	281.8	.0	.0	281.8
Beech	381.5	807.9	1,836.6	375.2	3,401.2
White ash	48.0	186.0	124.1	.0	358.1
Black ash	.0	.0	.0	.0	.0
Aspen	.0	.0	100.8	.0	100.8
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	34.6	11.8	.0	46.4
Elm	6.9	52.7	.0	.0	59.6
Other commercial hardwoods	113.5	52.4	37.0	.0	202.9
Noncommercial hardwoods	159.9	123.7	.0	.0	283.6
Total hardwoods	2,214.3	7,298.3	7,283.7	2,079.4	18,875.7
Total, all species	2,726.3	9,840.0	8,786.3	2,173.3	23,525.9

Table 39.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Orange County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	15,412	3,359	189	0	18,960
Tamarack	0	0	0	0	0
White spruce	2,593	564	91	0	3,248
Black spruce	0	0	0	0	0
Red spruce	7,584	6,663	1,217	0	15,464
Red pine	0	0	0	0	0
White pine	1,527	3,577	1,605	130	6,839
Northern white-cedar	1,297	1,248	122	0	2,667
Hemlock	21,603	6,764	1,986	49	30,402
Other softwoods	0	193	0	0	193
Total softwoods	50,016	22,368	5,210	179	77,773
Sugar maple	28,985	12,576	3,667	330	45,558
Soft maples	1,527	2,433	944	28	4,932
Yellow birch	1,527	1,924	331	13	3,795
Paper birch	0	1,360	429	0	1,789
Gray birch	0	0	0	0	0
Beech	3,054	1,158	579	63	4,854
White ash	1,527	1,626	162	0	3,315
Black ash	0	244	58	0	302
Aspen	6,108	2,080	915	0	9,103
White oaks	0	0	0	0	0
Red oaks	0	985	345	57	1,387
Basswood	1,527	614	138	7	2,286
Elm	0	70	59	0	129
Other commercial hardwoods	0	719	224	0	943
Noncommercial hardwoods	13,798	3,152	53	0	17,003
Total hardwoods	58,053	28,941	7,904	498	95,396
Total, all species	108,069	51,309	13,114	677	173,169

Table 39.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- <u>Thousand green tons</u> -----					
Balsam fir	683.6	652.0	124.6	.0	1,460.2
Tamarack	.0	.0	.0	.0	.0
White spruce	22.5	210.5	110.1	.0	343.1
Black spruce	.0	.0	.0	.0	.0
Red spruce	362.8	1,707.4	1,136.0	.0	3,206.2
Red pine	.0	.0	.0	.0	.0
White pine	34.7	984.2	2,098.5	575.6	3,693.0
Northern white-cedar	11.0	162.7	61.4	.0	235.1
Hemlock	521.4	1,788.6	1,998.6	187.4	4,496.0
Other softwoods	.0	27.3	.0	.0	27.3
Total softwoods	1,636.0	5,532.7	5,529.2	763.0	13,460.9
Sugar maple	677.2	3,648.1	4,407.1	1,657.5	10,389.9
Soft maples	39.5	641.3	849.6	90.7	1,621.1
Yellow birch	56.2	489.1	364.3	78.2	987.8
Paper birch	.0	592.4	485.8	.0	1,078.2
Gray birch	.0	.0	.0	.0	.0
Beech	152.0	379.7	617.3	331.1	1,480.1
White ash	58.2	526.2	164.0	.0	748.4
Black ash	.0	55.4	42.2	.0	97.6
Aspen	193.9	539.2	1,011.7	.0	1,744.8
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	271.2	332.8	1,224.3	1,828.3
Basswood	9.1	173.5	162.8	40.9	386.3
Elm	.0	32.9	41.7	.0	74.6
Other commercial hardwoods	.0	233.4	213.8	.0	447.2
Noncommercial hardwoods	387.5	538.1	50.9	.0	976.5
Total hardwoods	1,573.6	8,120.5	8,744.0	3,422.7	21,860.8
Total, all species	3,209.6	13,653.2	14,273.2	4,185.7	35,321.7

Table 40.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Orleans County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	27,475	11,542	1,006	0	40,023
Tamarack	0	0	0	0	0
White spruce	1,617	1,376	394	0	3,387
Black spruce	2,785	522	17	0	3,324
Red spruce	9,190	5,074	447	51	14,762
Red pine	0	0	0	0	0
White pine	0	606	298	18	922
Northern white-cedar	20,377	10,532	1,444	18	32,371
Hemlock	12,310	1,672	440	0	14,422
Other softwoods	0	0	0	0	0
Total softwoods	73,754	31,324	4,046	87	109,211
Sugar maple	15,293	8,172	1,171	216	24,852
Soft maples	13,830	2,532	1,048	34	17,444
Yellow birch	6,146	4,149	1,138	30	11,463
Paper birch	3,036	5,441	275	0	8,752
Gray birch	0	2,378	0	0	2,378
Beech	0	591	187	0	778
White ash	3,036	643	226	14	3,919
Black ash	1,500	70	17	0	1,587
Aspen	1,537	533	401	0	2,471
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	402	135	0	537
Elm	0	163	66	0	229
Other commercial hardwoods	0	399	238	15	652
Noncommercial hardwoods	1,537	1,479	0	0	3,016
Total hardwoods	45,915	26,952	4,902	309	78,078
Total, all species	119,669	58,276	8,948	396	187,289

Table 40.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- <u>Thousand green tons</u> -----					
Balsam fir	532.0	2,616.7	824.0	.0	3,972.7
Tamarack	.0	.0	.0	.0	.0
White spruce	95.0	336.3	324.4	.0	755.7
Black spruce	111.7	148.9	14.4	.0	275.0
Red spruce	435.7	1,110.1	457.8	183.7	2,187.3
Red pine	.0	.0	.0	.0	.0
White pine	.0	221.3	375.9	104.0	701.2
Northern white-cedar	383.9	1,415.8	602.0	18.6	2,420.3
Hemlock	387.9	433.0	364.5	.0	1,185.4
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,946.2	6,282.1	2,963.0	306.3	11,497.6
Sugar maple	424.7	2,070.3	1,271.0	841.5	4,607.5
Soft maples	101.3	769.9	910.0	124.3	1,905.5
Yellow birch	80.2	1,230.2	1,180.4	79.3	2,570.1
Paper birch	130.4	1,638.1	337.7	.0	2,106.2
Gray birch	.0	398.3	.0	.0	398.3
Beech	.0	164.2	170.7	.0	334.9
White ash	60.9	149.1	179.3	53.8	443.1
Black ash	125.4	19.7	25.2	.0	170.3
Aspen	80.2	158.0	349.7	.0	587.9
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	146.0	112.9	.0	258.9
Elm	.0	47.8	73.1	.0	120.9
Other commercial hardwoods	.0	125.1	189.0	48.9	363.0
Noncommercial hardwoods	4.7	221.2	.0	.0	225.9
Total hardwoods	1,007.8	7,137.9	4,799.0	1,147.8	14,092.5
Total, all species	2,954.0	13,420.0	7,762.0	1,454.1	25,590.1

Table 41.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Rutland County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	<u>Thousand trees</u>				
Balsam fir	8,640	582	149	0	9,371
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,186	3,275	577	0	11,038
Red pine	0	294	0	0	294
White pine	13,925	6,086	1,394	204	21,609
Northern white-cedar	1,440	682	69	0	2,191
Hemlock	12,875	5,503	1,288	52	19,718
Other softwoods	1,426	66	0	0	1,492
Total softwoods	45,492	16,488	3,477	256	65,713
Sugar maple	15,090	8,330	3,169	537	27,126
Soft maples	6,937	5,597	1,641	56	14,231
Yellow birch	5,511	2,929	1,344	150	9,934
Paper birch	0	3,232	787	0	4,019
Gray birch	2,880	33	0	0	2,913
Beech	31,174	4,400	1,164	30	36,768
White ash	9,730	2,790	873	16	13,409
Black ash	0	0	0	0	0
Aspen	2,880	1,001	373	0	4,254
White oaks	4,236	869	102	29	5,236
Red oaks	2,712	1,920	670	23	5,325
Basswood	0	275	80	0	355
Elm	7,172	1,288	188	16	8,664
Other commercial hardwoods	16,342	5,139	526	16	22,023
Noncommercial hardwoods	27,962	4,920	306	0	33,188
Total hardwoods	132,626	42,723	11,223	873	187,445
Total, all species	178,118	59,211	14,700	1,129	253,158

Table 41.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- <u>Thousand green tons</u> -----					
Balsam fir	122.2	120.2	60.1	.0	302.5
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	121.0	696.9	623.4	.0	1,441.3
Red pine	.0	116.5	.0	.0	116.5
White pine	369.4	1,408.2	1,562.3	979.1	4,319.0
Northern white-cedar	18.4	82.7	26.5	.0	127.6
Hemlock	170.5	1,343.5	1,219.5	153.7	2,887.2
Other softwoods	45.9	9.5	.0	.0	55.4
Total softwoods	847.4	3,777.5	3,491.8	1,132.8	9,249.5
Sugar maple	349.3	2,332.1	3,752.5	2,079.8	8,513.7
Soft maples	157.6	1,556.0	1,481.5	140.1	3,335.2
Yellow birch	115.6	940.7	1,385.7	459.3	2,901.3
Paper birch	.0	1,214.4	988.9	.0	2,203.3
Gray birch	106.9	6.4	.0	.0	113.3
Beech	466.5	1,400.9	1,247.7	72.1	3,187.2
White ash	340.4	746.9	893.5	104.8	2,085.6
Black ash	.0	.0	.0	.0	.0
Aspen	181.3	357.7	406.5	.0	945.5
White oaks	30.6	315.8	100.9	207.9	655.2
Red oaks	184.8	542.3	669.6	97.6	1,494.3
Basswood	.0	119.0	79.6	.0	198.6
Elm	89.7	363.5	166.0	34.5	653.7
Other commercial hardwoods	569.8	1,040.2	524.6	27.9	2,162.5
Noncommercial hardwoods	581.4	1,167.3	278.4	.0	2,027.1
Total hardwoods	3,173.9	12,103.2	11,975.4	3,224.0	30,476.5
Total, all species	4,021.3	15,880.7	15,467.2	4,356.8	39,726.0

Table 42.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Washington County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	26,972	5,276	543	0	32,791
Tamarack	0	198	34	0	232
White spruce	2,830	1,830	97	0	4,757
Black spruce	0	0	0	0	0
Red spruce	13,517	9,437	1,019	0	23,973
Red pine	0	0	0	0	0
White pine	1,501	1,380	878	0	3,759
Northern white-cedar	10,512	871	95	0	11,478
Hemlock	6,027	2,952	717	0	9,696
Other softwoods	0	17	0	0	17
Total softwoods	61,359	21,961	3,383	0	86,703
Sugar maple	25,546	10,764	1,824	97	38,231
Soft maples	13,463	4,910	830	4	19,207
Yellow birch	4,508	4,092	1,068	111	9,779
Paper birch	11,990	10,844	1,048	32	23,914
Gray birch	1,506	444	0	0	1,950
Beech	10,468	2,126	619	33	13,246
White ash	1,501	1,097	420	5	3,023
Black ash	0	427	180	0	607
Aspen	0	493	830	17	1,340
White oaks	0	0	0	0	0
Red oaks	0	281	69	0	350
Basswood	0	0	0	0	0
Elm	0	68	17	8	93
Other commercial hardwoods	1,490	3,371	314	50	5,225
Noncommercial hardwoods	10,494	655	0	0	11,149
Total hardwoods	80,966	39,572	7,219	357	128,114
Total, all species	142,325	61,533	10,602	357	214,817

Table 42.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- <u>Thousand green tons</u> -----					
Balsam fir	776.3	1,267.0	404.7	.0	2,448.0
Tamarack	.0	62.5	29.0	.0	91.5
White spruce	21.3	544.5	91.5	.0	657.3
Black spruce	.0	.0	.0	.0	.0
Red spruce	406.9	2,614.4	1,038.3	.0	4,059.6
Red pine	.0	.0	.0	.0	.0
White pine	43.7	428.4	1,077.7	.0	1,549.8
Northern white-cedar	172.5	135.9	30.6	.0	339.0
Hemlock	224.5	728.2	697.3	.0	1,650.0
Other softwoods	.0	7.6	.0	.0	7.6
Total softwoods	1,645.2	5,788.5	3,369.1	.0	10,802.8
Sugar maple	523.8	3,177.8	2,143.5	615.4	6,460.5
Soft maples	426.4	1,536.3	784.1	61.5	2,808.3
Yellow birch	165.3	1,289.8	1,129.5	415.2	2,999.8
Paper birch	393.1	3,149.5	1,310.0	153.5	5,006.1
Gray birch	123.3	99.7	.0	.0	223.0
Beech	461.7	571.9	944.3	131.8	2,109.7
White ash	7.6	253.6	475.1	36.9	773.2
Black ash	.0	107.7	189.6	.0	297.3
Aspen	.0	199.4	1,024.4	56.9	1,280.7
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	96.5	64.3	.0	160.8
Basswood	.0	.0	.0	.0	.0
Elm	.0	7.9	21.6	52.2	81.7
Other commercial hardwoods	49.0	707.0	359.6	238.0	1,353.6
Noncommercial hardwoods	183.3	108.9	.0	.0	292.2
Total hardwoods	2,333.5	11,306.0	8,446.0	1,761.4	23,846.9
Total, all species	3,978.7	17,094.5	11,815.1	1,761.4	34,649.7

Table 43.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Windham County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	7,322	1,186	42	0	8,550
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,259	4,768	903	29	12,959
Red pine	0	360	412	17	789
White pine	4,339	6,086	1,865	418	12,708
Northern white-cedar	0	0	0	0	0
Hemlock	2,896	8,269	2,641	50	13,856
Other softwoods	0	0	0	0	0
Total softwoods	21,816	20,669	5,863	514	48,862
Sugar maple	16,011	5,750	2,395	239	24,395
Soft maples	8,701	11,680	2,873	82	23,336
Yellow birch	4,339	3,058	619	97	8,113
Paper birch	10,180	4,094	848	0	15,122
Gray birch	2,909	261	0	0	3,170
Beech	11,586	4,957	1,693	30	18,266
White ash	0	1,418	631	0	2,049
Black ash	0	0	0	0	0
Aspen	0	802	132	15	949
White oaks	0	0	17	0	17
Red oaks	0	1,450	1,798	125	3,373
Basswood	0	33	0	0	33
Elm	1,454	0	36	0	1,490
Other commercial hardwoods	8,629	4,132	1,114	0	13,875
Noncommercial hardwoods	7,087	1,282	94	0	8,463
Total hardwoods	70,896	38,917	12,250	588	122,651
Total, all species	92,712	59,586	18,113	1,102	171,513

Table 43.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
----- <u>Thousand green tons</u> -----					
Balsam fir	202.3	271.4	39.3	.0	513.0
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	95.0	1,229.4	778.1	71.3	2,173.8
Red pine	.0	65.9	659.4	103.8	829.1
White pine	65.1	1,447.4	2,429.9	2,116.1	6,058.5
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	82.0	1,869.2	2,405.6	137.0	4,493.8
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	444.4	4,883.3	6,312.3	2,428.2	14,068.2
Sugar maple	430.6	1,934.4	2,452.3	905.2	5,722.5
Soft maples	143.9	3,217.4	2,732.3	263.1	6,356.7
Yellow birch	51.1	1,039.2	697.7	259.7	2,047.7
Paper birch	140.2	1,566.7	966.0	.0	2,672.9
Gray birch	36.2	37.4	.0	.0	73.6
Beech	290.1	1,495.2	1,776.4	73.2	3,634.9
White ash	.0	395.6	655.5	.0	1,051.1
Black ash	.0	.0	.0	.0	.0
Aspen	.0	265.1	208.9	49.1	523.1
White oaks	.0	.0	11.9	.0	11.9
Red oaks	.0	503.8	2,261.7	515.2	3,280.7
Basswood	.0	8.5	.0	.0	8.5
Elm	138.2	.0	45.6	.0	183.8
Other commercial hardwoods	181.2	1,137.8	1,262.4	.0	2,581.4
Noncommercial hardwoods	210.3	196.4	117.2	.0	523.9
Total hardwoods	1,621.8	11,797.5	13,187.9	2,065.5	28,672.7
Total, all species	2,066.2	16,680.8	19,500.2	4,493.7	42,740.9

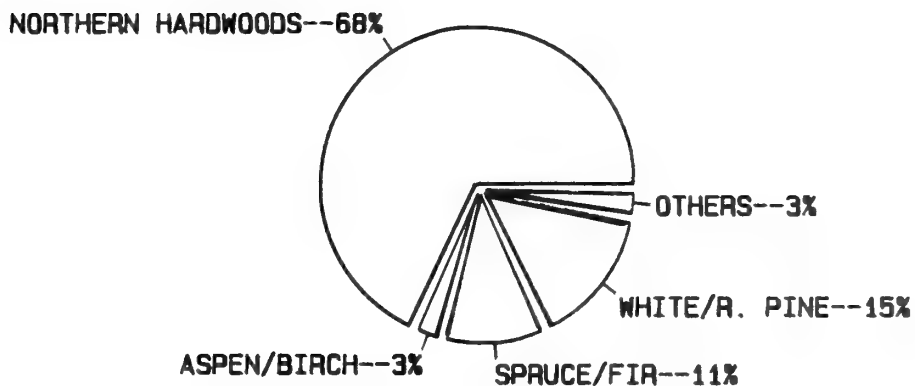
Table 44.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Windsor County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand trees -----				
Balsam fir	0	368	116	0	484
Tamarack	0	0	50	0	50
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	8,489	5,664	1,381	16	15,550
Red pine	0	0	0	0	0
White pine	11,928	8,292	2,964	162	23,346
Northern white-cedar	0	0	0	0	0
Hemlock	7,045	4,140	2,557	25	13,767
Other softwoods	0	0	0	0	0
Total softwoods	27,462	18,464	7,068	203	53,197
Sugar maple	38,185	17,035	6,163	367	61,750
Soft maples	9,848	7,002	1,034	23	17,907
Yellow birch	1,404	2,864	930	98	5,296
Paper birch	1,370	10,021	1,346	16	12,753
Gray birch	0	258	0	0	258
Beech	21,141	6,956	2,133	108	30,338
White ash	3,552	2,918	1,230	29	7,729
Black ash	0	0	16	0	16
Aspen	2,788	1,146	320	16	4,270
White oaks	0	127	52	0	179
Red oaks	0	1,439	470	65	1,974
Basswood	0	212	76	14	302
Elm	2,740	157	116	0	3,013
Other commercial hardwoods	1,417	2,490	435	14	4,356
Noncommercial hardwoods	11,297	4,583	16	0	15,896
Total hardwoods	93,742	57,208	14,337	750	166,037
Total, all species	121,204	75,672	21,405	953	219,234

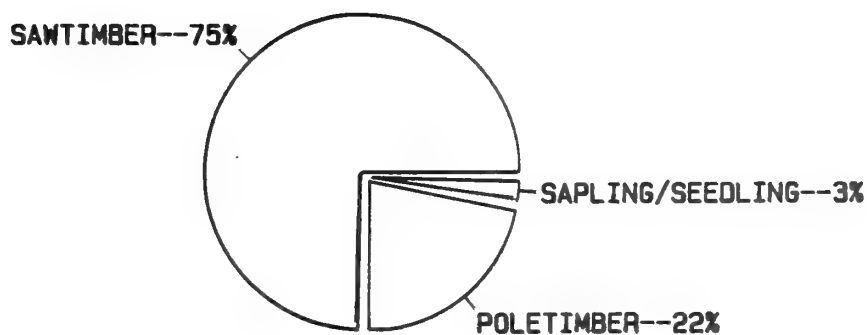
Table 44.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0- 4.9	5.0- 10.9	11.0- 20.9	21+	
	----- Thousand green tons -----				
Balsam fir	.0	74.5	77.5	.0	152.0
Tamarack	.0	.0	29.3	.0	29.3
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	112.7	1,466.0	1,173.6	57.5	2,809.8
Red pine	.0	.0	.0	.0	.0
White pine	469.8	2,022.5	3,141.2	717.5	6,351.0
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	145.0	1,149.3	2,306.3	57.5	3,658.1
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	727.5	4,712.3	5,727.9	832.5	13,000.2
Sugar maple	1,087.5	4,509.0	5,767.9	1,204.4	12,568.8
Soft maples	303.8	1,499.0	950.4	66.4	2,819.6
Yellow birch	73.0	848.0	887.4	222.9	2,031.3
Paper birch	97.6	3,214.6	1,461.0	39.1	4,812.3
Gray birch	.0	37.1	.0	.0	37.1
Beech	470.5	1,760.0	1,840.7	240.6	4,311.8
White ash	202.2	847.6	1,171.7	120.6	2,342.1
Black ash	.0	.0	12.8	.0	12.8
Aspen	107.6	270.1	354.1	10.1	741.9
White oaks	.0	32.9	37.0	.0	69.9
Red oaks	.0	459.3	431.4	118.2	1,008.9
Basswood	.0	64.5	63.1	22.3	149.9
Elm	18.3	60.2	117.3	.0	195.8
Other commercial hardwoods	98.7	759.5	389.0	20.4	1,267.6
Noncommercial hardwoods	253.4	752.6	1.7	.0	1,007.7
Total hardwoods	2,712.6	15,114.4	13,485.5	2,065.0	33,377.5
Total, all species	3,440.1	19,826.7	20,213.4	2,897.5	46,377.7

ABOVEGROUND BIOMASS of CULL and SALVABLE DEAD TREES



FOREST-TYPE GROUP



STANDSIZE CLASS

Table 45.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	10,200.3	1,223.3*	458.8*	.0	11,882.4	15
Spruce/fir	6,187.7	1,907.1	590.9*	.0	8,685.7	14
Oak/pine	33.1**	83.6**	.0	.0	116.7	77
Oak/hickory	802.4*	550.6*	108.6**	23.7**	1,485.3	29
Elm/ash/red maple	466.9*	264.7**	95.9**	.0	827.5	32
Northern hardwoods	41,625.5	11,560.5	1,334.5*	.0	54,520.5	5
Aspen/birch	420.8**	1,890.9*	.0	.0	2,311.7	26
Total, all groups	59,736.7	17,480.7	2,588.7	23.7	79,829.8	3.1
Sampling error (percent)	5	9	17	100	3.1	
	Thousand acres					Percent
White/red pine	522.0	65.3*	44.0*	.0	631.3	10
Spruce/fir	358.4	153.5	121.7	.0	633.6	9
Oak/pine	6.7**	6.8**	.0	.0	13.5	71
Oak/hickory	80.7*	45.4*	31.9*	6.4**	164.4	20
Elm/ash/red maple	43.6*	28.3*	27.1*	.0	99.0	26
Northern hardwoods	1,832.3	624.6	235.0	5.6**	2,697.5	3
Aspen/birch	44.1*	124.6	14.1**	.0	182.8	20
Total, all groups	2,887.8	1,048.5	473.8	12.0	4,422.1	.7
Sampling error (percent)	3	7	10	71	.7	
	Green tons per acre ^b					
White/red pine	19.5	18.7	10.4	.0	18.8	
Spruce/fir	17.3	12.4	4.9	.0	13.7	
Oak/pine	4.9	12.3	.0	.0	8.6	
Oak/hickory	9.9	12.1	3.4	3.7	9.0	
Elm/ash/red maple	10.7	9.4	3.5	.0	8.4	
Northern hardwoods	22.7	18.5	5.7	.0	20.2	
Aspen/birch	9.5	15.2	.0	.0	12.6	
All groups	20.7	16.7	5.5	2.0	18.1	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 46.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Addison County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	189.5**	106.7**	.0	.0	296.2	65
Spruce/fir	.0	31.4**	.0	.0	31.4	100
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	91.7**	.0	28.6**	.0	120.3	70
Elm/ash/red maple	138.0**	.0	.0	.0	138.0	100
Northern hardwoods	1,425.9*	545.3*	38.4**	.0	2,009.6	20
Aspen/birch	142.9**	76.2**	.0	.0	219.1	74
Total, all groups	1,988.0	759.6	67.0	.0	2,814.6	13.0
Sampling error (percent)	20	35	60	-	13.0	
	Thousand acres					Percent
White/red pine	22.9**	7.8**	.0	.0	30.7	49
Spruce/fir	.0	7.7**	.0	.0	7.7	100
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	16.2**	.0	11.6**	.0	27.8	51
Elm/ash/red maple	8.5**	.0	.0	.0	8.5	100
Northern hardwoods	124.1	51.3*	13.7**	5.6**	194.7	12
Aspen/birch	7.7**	8.5**	.0	.0	16.2	71
Total, all groups	179.4	75.3	25.3	5.6	285.6	2.2
Sampling error (percent)	12	27	48	100	2.2	
	Green tons per acre ^b					
White/red pine	8.3	8.7	.0	.0	8.4	
Spruce/fir	.0	3.3	.0	.0	3.3	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	5.7	.0	2.5	.0	4.3	
Elm/ash/red maple	16.2	.0	.0	.0	16.2	
Northern hardwoods	9.3	10.0	2.1	.0	8.7	
Aspen/birch	18.6	9.0	.0	.0	13.5	
All groups	9.6	9.1	2.3	.0	8.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 47.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Bennington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	9.3**	.0	9.3	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	93.6**	.0	27.3**	.0	120.9	64
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,297.1	1,155.6*	142.7**	.0	5,595.4	12
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	4,390.7	1,155.6	179.3	.0	5,725.6	11.2
Sampling error (percent)	15	48	53	-	11.2	
	Thousand acres					Percent
White/red pine	.0	.0	6.5**	.0	6.5	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	14.2**	.0	6.4**	.0	20.6	58
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	251.2	56.6*	19.9**	.0	327.7	4
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	265.4	56.6	32.8	.0	354.8	1.8
Sampling error (percent)	8	33	38	-	1.8	
	Green tons per acre ^b					
White/red pine	.0	.0	1.4	.0	1.4	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	6.6	.0	4.3	.0	5.9	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	17.1	20.4	7.2	.0	17.1	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	16.5	20.4	5.5	.0	16.1	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 48.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Caledonia County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	393.7**	29.4**	.0	.0	423.1	48
Spruce/fir	287.8*	259.1*	2.0**	.0	548.9	32
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,364.8*	820.1*	144.0**	.0	2,328.9	20
Aspen/birch	.0	165.3**	.0	.0	165.3	100
Total, all groups	2,046.3	1,273.9	146.0	.0	3,466.2	11.0
Sampling error (percent)	21	27	96	-	11.0	
	Thousand acres					Percent
White/red pine	44.2*	7.3**	.0	.0	51.5	35
Spruce/fir	44.1*	28.2*	14.6**	.0	86.9	24
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	66.8*	52.0*	20.2**	.0	139.0	17
Aspen/birch	.0	7.6**	7.3**	.0	14.9	71
Total, all groups	155.1	95.1	42.1	.0	292.3	3.8
Sampling error (percent)	15	24	39	-	3.8	
	Green tons per acre ^b					
White/red pine	8.9	4.0	.0	.0	8.2	
Spruce/fir	6.5	9.2	.1	.0	6.3	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	20.4	15.8	7.1	.0	16.8	
Aspen/birch	.0	21.8	.0	.0	11.1	
All groups	13.2	13.4	3.5	.0	11.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 49.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Chittenden County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	403.3**	.0	57.8**	.0	461.1	51
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	52.7**	23.7**	76.4	76
Elm/ash/red maple	116.3**	.0	.0	.0	116.3	69
Northern hardwoods	2,075.7	91.4**	291.5*	.0	2,458.6	16
Aspen/birch	.0	67.6**	.0	.0	67.6	83
Total, all groups	2,595.3	159.0	402.0	23.7	3,180.0	10.3
Sampling error (percent)	15	67	27	100	10.3	
	----- Thousand acres -----					Percent
White/red pine	20.7**	.0	7.2**	.0	27.9	49
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	7.3**	6.4**	13.7	71
Elm/ash/red maple	13.5**	.0	.0	.0	13.5	68
Northern hardwoods	91.1	7.0**	48.2*	.0	146.3	12
Aspen/birch	.0	13.5**	.0	.0	13.5	68
Total, all groups	125.3	20.5	62.7	6.4	214.9	3.8
Sampling error (percent)	12	56	20	100	3.8	
	----- Green tons per acre ^b -----					
White/red pine	19.5	.0	8.0	.0	16.5	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	7.2	3.7	5.6	
Elm/ash/red maple	8.6	.0	.0	.0	8.6	
Northern hardwoods	22.8	13.1	6.0	.0	16.8	
Aspen/birch	.0	5.0	.0	.0	5.0	
All groups	20.7	7.8	6.4	3.7	14.8	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 50.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Essex County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	.0	.0	.0	-
Spruce/fir	1,210.9*	472.9*	99.8**	.0	1,783.6	32
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	50.3**	.0	.0	.0	50.3	100
Northern hardwoods	2,291.9*	1,985.0*	264.7*	.0	4,541.6	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	3,553.1	2,457.9	364.5	.0	6,375.5	10.2
Sampling error (percent)	21	22	33	-	10.2	
	Thousand acres					Percent
White/red pine	.0	.0	.0	.0	.0	-
Spruce/fir	44.2*	51.5*	20.0**	.0	115.7	22
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	7.4**	.0	.0	.0	7.4	100
Northern hardwoods	110.5	110.6	49.5**	.0	270.6	10
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	162.1	162.1	69.5	.0	393.7	2.0
Sampling error (percent)	16	16	25	-	2.0	
	Green tons per acre ^b					
White/red pine	.0	.0	.0	.0	.0	
Spruce/fir	27.4	9.2	5.0	.0	15.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	6.8	.0	.0	.0	6.8	
Northern hardwoods	20.7	17.9	5.3	.0	16.8	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	21.9	15.2	5.2	.0	16.2	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 51.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Franklin/Grand Isle Counties, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	914.6*	.0	.0	.0	914.6	45
Spruce/fir	407.0**	101.7	.0	.0	508.7	80
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	9.2**	.0	.0	9.2	100
Elm/ash/red maple	.0	226.8**	9.4**	.0	236.2	65
Northern hardwoods	2,450.4*	464.4*	37.7**	.0	2,952.5	24
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	3,772.0	802.1	47.1	.0	4,621.2	15.8
Sampling error (percent)	21	31	79	-	15.8	
	Thousand acres					Percent
White/red pine	67.7*	.0	.0	.0	67.7	29
Spruce/fir	7.3**	6.0	6.9**	.0	20.2	50
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	2.9**	.0	.0	2.9	100
Elm/ash/red maple	.0	21.3**	13.8**	.0	35.1	42
Northern hardwoods	100.2	38.2*	13.8**	.0	152.2	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	175.2	68.4	34.5	.0	278.1	3.4
Sampling error (percent)	12	29	28	-	3.4	
	Green tons per acre ^b					
White/red pine	13.5	.0	.0	.0	13.5	
Spruce/fir	55.8	17.0	.0	.0	25.2	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	3.2	.0	.0	3.2	
Elm/ash/red maple	.0	10.6	.7	.0	6.7	
Northern hardwoods	24.5	12.2	2.7	.0	19.4	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	21.5	11.7	1.4	.0	16.6	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 52.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Lamoille County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	159.6**	.0	.0	.0	159.6	100
Spruce/fir	265.4**	.0	73.3**	.0	338.7	61
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,105.3	1,575.1*	.0	.0	5,680.4	11
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	4,530.3	1,575.1	73.3	.0	6,178.7	8.5
Sampling error (percent)	15	32	75	-	8.5	
	Thousand acres					Percent
White/red pine	7.2**	.0	.0	.0	7.2	100
Spruce/fir	14.6**	.0	15.8**	.0	30.4	43
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	124.7	65.3*	7.9**	.0	197.9	8
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	146.5	65.3	23.7	.0	235.5	1.7
Sampling error (percent)	12	27	12	-	1.7	
	Green tons per acre ^b					
White/red pine	22.2	.0	.0	.0	22.2	
Spruce/fir	18.2	.0	4.6	.0	11.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	32.9	24.1	.0	.0	28.7	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	30.9	24.1	3.1	.0	26.2	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 53.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Orange County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,303.9	.0	143.2	.0	1,447.1	33
Spruce/fir	330.4	65.7	62.0	.0	458.1	28
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	168.3	.0	.0	.0	168.3	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	3,671.1	553.1	.0	.0	4,224.2	21
Aspen/birch	77.6	122.8	.0	.0	200.4	71
Total, all groups	5,551.3	741.6	205.2	.0	6,498.1	12.1
Sampling error (percent)	15	50	64	-	12.1	
	Thousand acres					Percent
White/red pine	67.2*	.0	12.7**	.0	79.9	27
Spruce/fir	44.3*	7.7**	7.8**	.0	59.8	25
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	7.5**	.0	.0	.0	7.5	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	135.0	37.8*	6.8**	.0	179.6	13
Aspen/birch	7.5**	7.6**	.0	.0	15.1	69
Total, all groups	261.5	53.1	27.3	.0	341.9	4.0
Sampling error (percent)	9	35	50	-	4.0	
	Green tons per acre ^b					
White/red pine	19.4	.0	11.3	.0	18.1	
Spruce/fir	7.5	8.5	7.9	.0	7.7	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	22.4	.0	.0	.0	22.4	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	27.2	14.6	.0	.0	23.5	
Aspen/birch	10.3	16.2	.0	.0	13.3	
All groups	21.2	14.0	7.5	.0	19.0	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 54.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Orleans County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	.0	103.3**	.0	.0	103.3	100
Spruce/fir	1,941.9*	559.5**	155.7**	.0	2,657.1	23
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,956.9*	1,264.4*	.0	.0	3,221.3	24
Aspen/birch	.0	714.6**	.0	.0	714.6	58
Total, all groups	3,898.8	2,641.8	155.7	.0	6,696.3	12.2
Sampling error (percent)	23	25	71	-	12.2	
	----- Thousand acres -----					Percent
White/red pine	.0	7.4**	.0	.0	7.4	100
Spruce/fir	96.3	30.4*	30.0*	.0	156.7	16
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	67.9*	50.7*	.0	.0	118.6	19
Aspen/birch	.0	22.4**	.0	.0	22.4	56
Total, all groups	164.2	110.9	30.0	.0	305.1	3.9
Sampling error (percent)	15	22	49	-	3.9	
	----- Green tons per acre ^b -----					
White/red pine	.0	14.0	.0	.0	14.0	
Spruce/fir	20.2	18.4	5.2	.0	17.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	28.8	24.9	.0	.0	27.2	
Aspen/birch	.0	31.9	.0	.0	31.9	
All groups	23.7	23.8	5.2	.0	21.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 55.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Rutland County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	----- Thousand green tons -----					Percent
White/red pine	875.2*	366.1**	.0	.0	1,241.3	28
Spruce/fir	401.2**	.0	151.0**	.0	552.2	60
Oak/pine	33.1**	.0	.0	.0	33.1	100
Oak/hickory	.0	392.8**	.0	.0	392.8	51
Elm/ash/red maple	.0	37.9**	18.1**	.0	56.0	75
Northern hardwoods	3,950.8	430.4*	157.3**	.0	4,538.5	16
Aspen/birch	.0	62.6**	.0	.0	62.6	100
Total, all groups	5,260.3	1,289.8	326.4	.0	6,876.5	10.0
Sampling error (percent)	15	27	59	-	10.0	
	----- Thousand acres -----					Percent
White/red pine	84.0*	28.4*	.0	.0	112.4	21
Spruce/fir	14.3**	.0	19.1**	.0	33.4	44
Oak/pine	6.7**	.0	.0	.0	6.7	100
Oak/hickory	.0	27.6*	6.7**	.0	34.3	43
Elm/ash/red maple	.0	7.0**	6.7**	.0	13.7	71
Northern hardwoods	184.5	33.5*	19.1*	.0	237.1	11
Aspen/birch	.0	7.1 **	.0	.0	7.1	100
Total, all groups	289.5	103.6	51.6	.0	444.7	1.3
Sampling error (percent)	9	23	31	-	1.3	
	----- Green tons per acre ^b -----					
White/red pine	10.4	12.9	.0	.0	11.0	
Spruce/fir	28.1	.0	7.9	.0	16.5	
Oak/pine	4.9	.0	.0	.0	4.9	
Oak/hickory	.0	14.2	.0	.0	11.5	
Elm/ash/red maple	.0	5.4	2.7	.0	4.1	
Northern hardwoods	21.4	12.8	8.2	.0	19.1	
Aspen/birch	.0	8.8	.0	.0	8.8	
All groups	18.2	12.4	6.3	.0	15.5	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 56.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Washington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	218.1**	189.5**	.0	.0	407.6	57
Spruce/fir	556.9*	62.6**	.0	.0	619.5	41
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	148.6**	.0	.0	148.6	100
Elm/ash/red maple	64.0**	.0	68.4**	.0	132.4	71
Northern hardwoods	2,622.1	828.4*	37.5**	.0	3,488.0	17
Aspen/birch	54.4**	242.8**	.0	.0	297.2	48
Total, all groups	3,515.5	1,471.9	105.9	.0	5,093.3	9.2
Sampling error (percent)	15	28	74	-	9.2	
	Thousand acres					Percent
White/red pine	22.2**	7.4**	.0	.0	29.6	49
Spruce/fir	44.4*	14.9**	.0	.0	59.3	33
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	7.4**	.0	.0	7.4	100
Elm/ash/red maple	7.4**	.0	6.6**	.0	14.0	71
Northern hardwoods	133.0	44.5*	21.5**	.0	199.0	14
Aspen/birch	7.4**	37.1*	.0	.0	44.5	38
Total, all groups	214.4	111.3	28.1	.0	353.8	2.5
Sampling error (percent)	11	20	38	-	2.5	
	Green tons per acre ^b					
White/red pine	9.8	25.6	.0	.0	13.8	
Spruce/fir	12.5	4.2	.0	.0	10.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	20.1	.0	.0	20.1	
Elm/ash/red maple	8.6	.0	10.4	.0	9.5	
Northern hardwoods	19.7	18.6	1.7	.0	17.5	
Aspen/birch	7.4	6.5	.0	.0	6.7	
All groups	16.4	13.2	3.8	.0	14.4	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 57.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Windham County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,368.1*	.0	.0	.0	1,368.1	43
Spruce/fir	196.3**	.0	47.1**	.0	243.4	61
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	211.8**	.0	.0	.0	211.8	51
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	3,409.0	360.0**	220.7**	.0	3,989.7	17
Aspen/birch	22.3**	.0	.0	.0	22.3	81
Total, all groups	5,207.5	360.0	267.8	.0	5,835.3	13.1
Sampling error (percent)	15	57	64	-	13.1	
	Thousand acres					Percent
White/red pine	85.0*	.0	.0	.0	85.0	26
Spruce/fir	21.4**	.0	7.5**	.0	28.9	49
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	35.8*	7.4**	.0	.0	43.2	40
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	206.6	28.6**	14.3**	.0	249.5	11
Aspen/birch	14.4**	.0	.0	.0	14.4	69
Total, all groups	363.2	36.0	21.8	.0	421.0	1.2
Sampling error (percent)	5	43	57	-	1.2	
	Green tons per acre ^b					
White/red pine	16.1	.0	.0	.0	16.1	
Spruce/fir	9.2	.0	6.3	.0	8.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	5.9	.0	.0	.0	4.9	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	16.5	12.6	15.4	.0	16.0	
Aspen/birch	1.5	.0	.0	.0	1.5	
All groups	14.3	10.0	12.3	.0	13.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 58.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Windsor County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error ^a
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	4,374.3*	428.3**	248.5**	.0	5,051.1	27
Spruce/fir	589.9**	354.2**	.0	.0	944.1	52
Oak/pine	.0	83.6**	.0	.0	83.6	100
Oak/hickory	237.0**	.0	.0	.0	237.0	100
Elm/ash/red maple	98.3**	.0	.0	.0	98.3	100
Northern hardwoods	8,004.5	1,487.3*	.0	.0	9,491.8	13
Aspen/birch	123.6**	439.0**	.0	.0	562.6	52
Total, all groups	13,427.6	2,792.4	248.5	.0	16,468.5	7.8
Sampling error (percent)	11	28	73	-	7.8	
	Thousand acres					Percent
White/red pine	100.9*	7.0**	17.6**	.0	125.5	19
Spruce/fir	27.6*	7.0**	.0	.0	34.6	44
Oak/pine	.0	6.8**	.0	.0	6.8	100
Oak/hickory	7.0**	.0	.0	.0	7.0	100
Elm/ash/red maple	6.8**	.0	.0	.0	6.8	100
Northern hardwoods	236.7	48.6*	.0	.0	285.3	10
Aspen/birch	7.0**	20.9**	6.8**	.0	34.7	44
Total, all groups	386.0	90.3	24.4	.0	500.7	2.2
Sampling error (percent)	7	26	59	-	2.2	
	Green tons per acre ^b					
White/red pine	43.4	61.2	14.1	.0	40.2	
Spruce/fir	21.4	50.6	.0	.0	27.3	
Oak/pine	.0	12.3	.0	.0	12.3	
Oak/hickory	33.9	.0	.0	.0	33.9	
Elm/ash/red maple	14.5	.0	.0	.0	14.5	
Northern hardwoods	33.8	30.6	.0	.0	33.3	
Aspen/birch	17.7	21.0	.0	.0	16.2	
All groups	34.8	30.9	10.2	.0	32.9	

^aSampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

^bPer acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 59.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<hr style="border-top: 1px dashed black;"/> <u>Thousand trees</u> <hr style="border-top: 1px dashed black;"/>					
Softwoods	38,065	7,005	553	45,623	13,854	59,477
Hardwoods	109,787	23,856	3,564	137,207	11,362	148,569
Total, all species	147,852	30,861	4,117	182,830	25,216	208,046
	<hr style="border-top: 1px dashed black;"/> <u>Thousand green tons</u> <hr style="border-top: 1px dashed black;"/>					
Softwoods	7,176.8	6,273.4	2,371.3	15,821.5	2,805.7	18,627.2
Hardwoods	23,091.7	22,340.8	12,178.2	57,610.7	3,591.9	61,202.6
Total, all species	30,268.5	28,614.2	14,549.5	73,432.2	6,397.6	79,829.8

Table 60.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Addison County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<u>Thousand trees</u>					
Softwoods	951	18	0	969	321	1,290
Hardwoods	6,985	951	105	8,041	1,047	9,088
Total, all species	7,936	969	105	9,010	1,368	10,378
	<u>Thousand green tons</u>					
Softwoods	151.4	29.6	.0	181.0	44.5	225.5
Hardwoods	1,267.2	806.7	280.7	2,354.6	234.5	2,589.1
Total, all species	1,418.6	836.3	280.7	2,535.6	279.0	2,814.6

Table 61.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Bennington County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0~ 10.9	11.0~ 20.9	21+	All diameter groups		
	<u>Thousand trees</u>					
Softwoods	1,743	140	0	1,883	33	1,916
Hardwoods	8,277	2,776	365	11,418	585	12,003
Total, all species	10,020	2,916	365	13,301	618	13,919
	<u>Thousand green tons</u>					
Softwoods	326.0	58.2	.0	384.2	4.0	388.2
Hardwoods	1,835.0	2,397.7	921.0	5,153.7	183.7	5,337.4
Total, all species	2,161.0	2,455.9	921.0	5,537.9	187.7	5,725.6

Table 62.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Caledonia County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
<hr/> <div>Thousand trees</div> <hr/>						
Softwoods	1,429	245	0	1,674	2,578	4,252
Hardwoods	2,163	794	113	3,070	1,456	4,526
Total, all species	3,592	1,039	113	4,744	4,034	8,778
<hr/> <div>Thousand green tons</div> <hr/>						
Softwoods	211.0	215.8	.0	426.8	520.3	947.1
Hardwoods	428.3	984.2	484.2	1,896.7	622.4	2,519.1
Total, all species	639.3	1,200.0	484.2	2,323.5	1,142.7	3,466.2

Table 63.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Chittenden County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
<hr/> <div>Thousand trees</div> <hr/>						
Softwoods	1,259	266	0	1,525	32	1,557
Hardwoods	5,000	1,276	84	6,360	426	6,786
Total, all species	6,259	1,542	84	7,885	458	8,343
<hr/> <div>Thousand green tons</div> <hr/>						
Softwoods	217.3	206.7	.0	424.0	2.9	426.9
Hardwoods	1,194.8	1,169.2	283.7	2,647.7	105.4	2,753.1
Total, all species	1,412.1	1,375.9	283.7	3,071.7	108.3	3,180.0

Table 64.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Essex County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<u>Thousand trees</u>					
Softwoods	3,869	247	13	4,129	1,124	5,253
Hardwoods	10,594	1,847	282	12,723	641	13,364
Total, all species	14,463	2,094	295	16,852	1,765	18,617
	<u>Thousand green tons</u>					
Softwoods	735.3	185.2	29.8	950.3	330.0	1,280.3
Hardwoods	2,212.3	1,783.3	921.8	4,917.4	177.8	5,095.2
Total, all species	2,947.6	1,968.5	951.6	5,867.7	507.8	6,375.5

Table 65.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Franklin/Grand Isle Counties, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	----- <u>Thousand trees</u> -----					
Softwoods	1,734	449	46	2,229	1,136	3,365
Hardwoods	4,628	1,212	264	6,104	648	6,752
Total, all species	6,362	1,661	310	8,333	1,784	10,117
	----- <u>Thousand green tons</u> -----					
Softwoods	297.3	445.1	175.2	917.6	227.2	1,144.8
Hardwoods	917.3	1,347.7	880.7	3,145.7	330.7	3,476.4
Total, all species	1,214.6	1,792.8	1,055.9	4,063.3	557.9	4,621.2

Table 66.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Lamoille County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<hr/> <u>Thousand trees</u> <hr/>					
Softwoods	3,212	210	17	3,439	508	3,947
Hardwoods	8,632	1,922	341	10,895	496	11,391
Total, all species	11,844	2,132	358	14,334	1,004	15,338
	<hr/> <u>Thousand green tons</u> <hr/>					
Softwoods	592.2	162.0	45.3	799.5	127.8	927.3
Hardwoods	1,660.6	2,191.5	1,210.9	5,063.0	188.4	5,251.4
Total, all species	2,252.8	2,353.5	1,256.2	5,862.5	316.2	6,178.7

Table 67.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Orange County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<hr/> ----- <u>Thousand trees</u> -----					
Softwoods	3,111	394	57	3,562	767	4,329
Hardwoods	7,415	1,201	338	8,954	1,157	10,111
Total, all species	10,526	1,595	395	12,516	1,924	14,440
	<hr/> ----- <u>Thousand green tons</u> -----					
Softwoods	575.3	457.9	271.6	1,304.8	142.9	1,447.7
Hardwoods	1,434.8	1,376.4	1,865.6	4,676.8	373.6	5,050.4
Total, all species	2,010.1	1,834.3	2,137.2	5,981.6	516.5	6,498.1

Table 68.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Orleans County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<u>Thousand trees</u>					
Softwoods	6,636	791	0	7,427	2,235	9,662
Hardwoods	9,960	1,712	226	11,898	805	12,703
Total, all species	16,596	2,503	226	19,325	3,040	22,365
	<u>Thousand green tons</u>					
Softwoods	977.8	587.4	.0	1,565.2	577.7	2,142.9
Hardwoods	1,963.6	1,540.8	803.2	4,307.6	245.8	4,553.4
Total, all species	2,941.4	2,128.2	803.2	5,872.8	823.5	6,696.3

Table 69.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Rutland County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
	<u>Thousand trees</u>					
Softwoods	2,009	345	92	2,446	587	3,033
Hardwoods	10,904	2,231	404	13,539	932	14,471
Total, all species	12,913	2,576	496	15,985	1,519	17,504
	<u>Thousand green tons</u>					
Softwoods	378.8	275.5	287.1	941.4	62.1	1,003.5
Hardwoods	2,437.6	1,983.7	1,242.5	5,663.8	209.2	5,873.0
Total, all species	2,816.4	2,259.2	1,529.6	6,605.2	271.3	6,876.5

Table 70.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Washington County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
<hr/> <div>----- <u>Thousand trees</u> -----</div> <hr/>						
Softwoods	2,356	197	0	2,553	1,925	4,478
Hardwoods	4,776	893	182	5,851	1,285	7,136
Total, all species	7,132	1,090	182	8,404	3,210	11,614
<hr/> <div>----- <u>Thousand green tons</u> -----</div> <hr/>						
Softwoods	437.6	154.7	.0	592.3	523.0	1,115.3
Hardwoods	1,194.8	1,157.1	925.2	3,277.1	700.9	3,978.0
Total, all species	1,632.4	1,311.8	925.2	3,869.4	1,223.9	5,093.3

Table 71.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Windham County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
<hr/> <div>----- <u>Thousand trees</u> -----</div> <hr/>						
Softwoods	1,284	428	172	1,884	1,944	3,828
Hardwoods	5,880	2,041	313	8,234	1,114	9,348
Total, all species	7,164	2,469	485	10,118	3,058	13,176
<hr/> <div>----- <u>Thousand green tons</u> -----</div> <hr/>						
Softwoods	243.9	346.7	886.4	1,477.0	176.2	1,653.2
Hardwoods	1,251.1	1,848.0	965.8	4,064.9	117.2	4,182.1
Total, all species	1,495.0	2,194.7	1,852.2	5,541.9	293.4	5,835.3

Table 72.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Windsor County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0- 10.9	11.0- 20.9	21+	All diameter groups		
<hr style="border-top: 1px dashed black;"/> <div>Thousand trees</div> <hr style="border-top: 1px dashed black;"/>						
Softwoods	8,472	3,275	156	11,903	664	12,567
Hardwoods	24,573	5,000	547	30,120	770	30,890
Total, all species	33,045	8,275	703	42,023	1,434	43,457
<hr style="border-top: 1px dashed black;"/> <div>Thousand green tons</div> <hr style="border-top: 1px dashed black;"/>						
Softwoods	2,032.9	3,148.6	675.9	5,857.4	67.1	5,924.5
Hardwoods	5,294.3	3,754.5	1,392.9	10,441.7	102.3	10,544.0
Total, all species	7,327.2	6,903.1	2,068.8	16,299.1	169.4	16,468.5

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Appendix

Definition of Terms

Aboveground tree biomass. The net green weight of wood and bark in trees aboveground.

Biomass. The quantity of material in organic matter measured in terms of its weight.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality such as hawthorn or sumac.

Cull trees. Rotten trees, that is, live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs and more than 50 percent of the cull volume is rotten; rough trees, that is, live trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) noncommercial species.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground on the uphill side of the tree.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species that form a plurality of the stocking (basal area of all live trees).

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in Vermont were combined into the following major forest-type groups (the descriptions apply to forests in Vermont).

a. White/red pine--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include sugar maple, red maple, red spruce, balsam fir, and paper birch.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make

up a plurality of the stocking; common associates include paper birch, red maple, aspen, white pine, hemlock, and sugar maple.

c. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; beech, red spruce, and sugar maple are associates.

d. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 75 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, sugar maple, and red maple.

e. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, aspen, and white ash.

f. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and basswood.

g. Aspen/birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, red spruce, white ash, and white pine.

Green weight. The weight of wood and bark as it would be if it had been recently cut, usually expressed in pounds or tons. Net green weight equals gross weight less deductions for all unsound (rotten) material.

Growing-stock trees. Live trees of commercial species classified as either sawtimber, poletimber, saplings, or seedlings; all live trees except cull trees. While saplings and seedlings are classified as growing-stock trees, by USDA Forest Service definition, they contain no volume.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches d.b.h. and larger from a 1-foot stump height to a minimum 4.0-inch top d.o.b. of the central stem, or to the point where the central stem breaks into limbs if that occurs before it reaches this minimum diameter. Net volume equals gross volume less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. For 4-foot sections, the mathematical formula is $(0.22D^2 - 0.71D)(0.904762)$; where D = diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), including the wood and bark.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nongrowing-stock biomass. The biomass in cull trees (including noncommercial tree species), salvable dead trees, saplings, stumps between ground level and a 1-foot stump height, and the tops of growing-stock trees.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs and more than 50 percent of the cull volume is rotten.

Rough trees. Live trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) noncommercial species.

Salvable dead trees. Trees at least 5.0 inches in d.b.h. that have recently died, but still have intact bark. The trees may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 inches through 4.9 inches d.b.h.

Sawlog portion. The part of the bole of a sawtimber tree between the stump and the point on the bole above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0-inch d.b.h. and at least 1 foot in height.

Softwoods. Coniferous trees, usually evergreen, with needles or scalelike leaves.

Stand-size class. A classification of forest land based on the size class of all live trees in the area.

a. Sawtimber stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; (2) half or more of the stocking is made up of poletimber trees, sawtimber trees, or both; and (3) the stocking of sawtimber is at least equal to that of poletimber.

b. Poletimber stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; (2) half or more of the stocking is made up of poletimber trees, sawtimber trees, or both; and (3) the stocking of poletimber exceeds that of sawtimber.

c. Sapling-seedling stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; and (2) half or more of the stocking is made up of saplings, seedlings, or both.

d. Nonstocked area--stands of timber on forest land where all live trees make up less than 10 percent of the minimum full stocking.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark. Excludes the stump-root system below the ground.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Top and branches. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches d.o.b. It includes the uppermost stem,

branches, and twigs of the tree but not the foliage.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches d.o.b., or to the point where the main stem or fork breaks into limbs.

Tree species of Vermont (as encountered on field plots)

<u>Scientific Name</u> ^a	<u>Common Name(s)</u>	<u>Occurrence</u> ^b
Softwoods		
<u>Abies balsamea</u> (L.) Mill.	balsam fir	vc
<u>Juniperus virginiana</u> L.	eastern redcedar	r
<u>Larix laricina</u> (Du Roi) K. Koch	tamarack, eastern larch	r
<u>Picea glauca</u> (Moench) Karst.	white spruce	c
<u>P. mariana</u> (Mill.) B.S.P.	black spruce	r
<u>P. rubens</u> Sarg.	red spruce	vc
<u>Pinus resinosa</u> Ait.	red or Norway pine	r
<u>P. strobus</u> L.	eastern white pine	vc
<u>Thuja occidentalis</u> L.	northern white-cedar	c
<u>Tsuga canadensis</u> (L.) Carr.	eastern hemlock	vc
Hardwoods		
<u>Acer negundo</u> L.	boxelder	vr
<u>Acer pensylvanicum</u> L. ^c	striped maple, moosewood	c
<u>A. rubrum</u> L.	red, soft, or swamp maple	vc
<u>A. saccharinum</u> L.	silver or soft maple	c
<u>A. saccharum</u> L.	sugar, rock, or hard maple	vc
<u>Ailanthus altissima</u> (Mill.) Swingle ^c	Ailanthus, tree-of-heaven	vr
<u>Betula alleghaniensis</u> Britton	yellow birch	vc
<u>B. lenta</u> L.	sweet, black, or cherry birch	c
<u>B. papyrifera</u> Marsh.	paper, white, or canoe birch	vc
<u>B. populifolia</u> Marsh.	gray birch	c
<u>Carpinus caroliniana</u> Walt. ^c	American hornbeam, blue beech	vr
<u>Carya</u> spp. Nutt.	hickory	c
<u>Crataegus</u> spp. L. ^c	hawthorn	vr
<u>Fagus grandifolia</u> Ehrh.	American beech	vc
<u>Fraxinus americana</u> L.	white ash	c
<u>F. nigra</u> Marsh.	black ash, brown ash	r
<u>F. pennsylvanica</u> Marsh.	green ash, red ash	r
<u>Gleditsia triacanthos</u> L.	honeylocust	vr
<u>Juglans cinerea</u> L.	butternut	r
<u>Juglans nigra</u> L. ^c	black walnut	vr
<u>Malus</u> spp. Mill. ^c	apple	r
<u>Ostrya virginiana</u> (Mill.) K. Koch ^c	eastern hophornbeam, ironwood	c
<u>Populus balsamifera</u> L.	balsam poplar	vr
<u>P. deltoides</u> Bartr. Marsh	eastern cottonwood	vr
<u>P. grandidentata</u> Michx.	bigtooth aspen, poplar, popple	r
<u>P. tremuloides</u> Michx.	quaking or trembling aspen	c
<u>Prunus pensylvanica</u> L.f. ^c	pin or fire cherry	r
<u>Prunus serotina</u> Ehrh.	black cherry	c
<u>Quercus alba</u> L.	white oak	r
<u>Q. bicolor</u> Willd.	swamp white oak	vr
<u>Q. prinus</u> L.	chestnut oak	vr
<u>Q. rubra</u> L.	northern red oak	c
<u>Robinia pseudoacacia</u> L.	black locust	vr
<u>Tilia americana</u> L.	American basswood	r
<u>Ulmus americana</u> L.	American elm	c
<u>U. rubra</u> Muhl.	slippery or red elm	r

^aNames according to: Little, Elbert L., Jr. Checklist of United States Trees (native and naturalized). Agric. Handb. 541 Washington, DC: U.S Department of Agriculture, Forest Service; 1979. 375 p.

^bOccurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (5.0%).

^cNoncommercial species.

1 acre = 4,046.86 square meters or 0.404686
 hectares

1 board foot^a = 0.00348 cubic meters or 3,480
 cubic centimeters

1 cubic foot = 0.028317 cubic meters

1 cord (wood, bark, and airspace) = 3.6246 cubic
 meters

1 cord (solid wood, pulpwood) = 2.4069 cubic
 meters

1 cord (solid wood, other than pulpwood) =
 2.2654 cubic meters

1,000 cords (pulpwood) = 2,406.9 cubic meters

1,000 cords (other products) = 2,265.4 cubic
 meters

1 inch = 2.54 centimeters or 0.0254 meters

1 foot = 30.48 centimeters or 0.3048 meters

1 mile = 1.609 kilometers

1 square foot = 929.03 square centimeters or
 0.0929 square meters

1 square foot per acre basal area = 0.229568
 square meters per hectare

1 ton = 907.1848 kilograms

1,000 tons = 907.1848 metric tons

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List of Available Biomass Tables

The following biomass tables are on microfiche. These tables are available at the state, geographic unit, and county level. Copies of fiche or photocopies of particular tables can be obtained by calling or writing

USDA Forest Service
Forest Inventory, Analysis, & Economics
370 Reed Road
Broomall, PA 19008
(215)461-3037

<u>Table Number</u>	<u>Table description</u>
9000	Softwood aboveground biomass by diameter class land stand-size class.
9001	Hardwood aboveground biomass by diameter class and stand-size class.
9010	Net weight (tons) of cull and salvable dead trees on timberland by component type of tree and softwoods/hardwoods.
9020	Net weight (tons) of all live trees on timberland by components and age class.
9030	Net weight (tons) of merchantable stem of growing stock trees on timberland by species and diameter class.
9050	Net weight (tons) of all live trees on timberland by forest type and stand-size class.
9051	Net weight (tons) of all live trees on timberland by forest-type group and stand size class.
9060	Net weight (tons) per acre of all live trees on timberland by forest type and stand-size classes.
9090	Net weight (tons) of cull and salvable dead trees on timberland by forest-type group and stand-size class.
9100	Net weight (tons) per acre of cull and salvable dead trees on timberland by forest-type group and stand-size class.
9120	Net weight (tons) of all live trees on timberland by timber management class and stand area class.

- 9130 Net weight (tons) per acre of all live trees on timberland by timber management and stand area classes.
- 9150 Net weight (tons) of all live trees on timberland by timber management class and forest-type group.
- 9160 Net weight (tons) of all trees on timberland by class of materials and softwoods and hardwoods.
- 9170 Net weight (tons) of all live trees on timberland by species and diameter class.
- 9171 Net weight (tons) of all live trees on timberland by species and diameter group.
- 9172 Net weight (tons) of cull and salvable dead trees 5"+ on timberland by species group and diameter group.
- 9180 Net weight (tons) of growing stock trees on timberland by species and diameter class .
- 9190 Net weight per acre of all live trees on timberland by timber management class and forest-type group.

Frieswyk, Thomas S.; Malley, Anne M. Aboveground tree biomass statistics for Vermont - 1983. Resour. Bull. NE-91. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 105 p.

A statistical report on the fourth forest survey of Vermont (1983). Findings are displayed in 72 tables containing estimates of forest area, numbers of trees, tree biomass, and timber volume. Data is presented by state and county level.

ODC 536 (743)

Keywords: Forest survey, inventory, area, volume, biomass.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
 - Berea, Kentucky, in cooperation with Berea College.
 - Burlington, Vermont, in cooperation with the University of Vermont.
 - Delaware, Ohio.
 - Durham, New Hampshire, in cooperation with the University of New Hampshire.
 - Hamden, Connecticut, in cooperation with Yale University.
 - Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.
 - Orono, Maine, in cooperation with the University of Maine, Orono.
 - Parsons, West Virginia.
 - Princeton, West Virginia.
 - Syracuse, New York, in cooperation with the State University of New York College of Environmental Sciences and Forestry at Syracuse University, Syracuse.
 - University Park, Pennsylvania, in cooperation with the Pennsylvania State University.
 - Warren, Pennsylvania.
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